

**GLOSSARY
MASTER INDEX**

4th DIMENSION[®]

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GLOSSARY AND MASTER INDEX

4th DIMENSION by Laurent Ribardière

GLOSSARY

GLOSSARY

Accept The act of saving a record. In an input layout this is commonly done by typing the Enter key or pressing an accept button.

Access privileges See Password access privileges.

Access system See Password access system.

Active object An object in a layout that can process data or carry out an action. Active objects are created using the Create Active Object tool or the Add Field tool. They include: fields, buttons, enterable areas, and indicators.

Administrator One of two users that is created automatically by the Password editor. The Administrator is the default group owner for all groups created by the database designer. The administrator can also create and manage users and add users to groups.

After phase The last phase of the execution cycle in an input layout. The After phase occurs when the user accepts a record.

Alert box A dialog in a modal window of fixed size that informs the user of a condition. For example, if you try to enter an invalid value, 4th DIMENSION will display an alert box that tells you that the value is invalid.

Alpha field A field type that consists of alphanumeric characters (letters, numbers, and other characters) and has a maximum length of 80.

Application A 4th DIMENSION database with custom menus. An application runs in the Runtime environment using 4th DIMENSION or it runs with 4th DIMENSION Runtime.

Apply Formula A menu command that is used to perform a global update on the current selection. Choosing Apply Formula displays the Formula editor.

Argument Information passed to and from commands, functions, and procedures. \$0, \$1

Array A series of values stored temporarily in memory. The values are referenced by the array name followed by braces, ({...}). An array is typed and declared using one of the language's array commands. Arrays are commonly displayed as scrollable areas or pop-up menus.

Array element One of the values stored in an array.

Ascending order A sort direction that goes from lower to higher. For example, A to Z, early to late, and so forth.

ASCII A system used by computers to represent characters of the alphabet and other special characters used internally by the computer.

Assignment operator (:=) A symbol used by the procedural language to assign the value returned by the expression on its right to the expression on its left.

Automatic relation A relation between files that automatically loads records from the related file whenever appropriate. An automatic relation gives the user the ability to perform searches, sorts and other database operations across files.

Average The arithmetic mean, that is, the sum divided by the count.

Backup A copy of a database that is stored in a safe place in case the original database is damaged or lost.

Before phase The first phase of the execution cycle in a layout procedure. The Before phase occurs before a record is displayed.

Bidirectional relation A relation between files that is both one-to-many and many-to-one.

Boolean field A field that stores only one of two values, TRUE or FALSE. A Boolean field can be displayed on a layout as either a check box or a pair of radio buttons. On a Quick report, a Boolean field is displayed with the words TRUE or FALSE.

Branching statement Statements which direct procedure flow. The If...End if and Case...End case programming structures are branching statements.

Break area The part of a report between two groups of records. The Break area is the part of a report in which summary calculations can be displayed. In an output layout, a Break area is created by moving the Break markers; in a Quick report, a Break area is defined by creating a Break row.

Break header A separate Header area associated with a particular break level. A break header is used to display information once above a given break level.

Break marker The triangle in the vertical ruler of the Layout editor used to size the Break area.

Break processing The process by which sorted records are divided into logical groups.

Break row A row in the Quick Report editor in which summary calculations for groups of records appear.

Button An active object on a layout that performs an action when the user clicks it.

Button text The text used to label a button.

Can't modify A field attribute used to prevent users from modifying the value of a field after the record has been accepted. A "Can't modify" field can be modified using the language.

Cancel The act of discarding a new record or modifications to an existing record. In an input layout this is commonly done by typing Command-period or pressing a cancel button.

Character reference symbols Symbols used to refer to a specific character in a string. The character reference symbols, " \leq " and " \geq " are placed around a number that denotes the position of the character being referenced.

Check box A type of button that displays as a small square followed by a label. Clicking a check box causes it to toggle between being checked (an "X" appears in the box) and unchecked. Boolean fields can be displayed as check boxes.

Choice list A list created in the Lists editor that is used to display a list of choices during data entry or to limit the values that can be entered.

Clone A copy of a database structure. A clone of a database contains all the specifications for the database—files, fields, layouts, procedures, menus, lists, and so forth—but no data.

Code A series of statements written using the language.

Command-click The act of holding down the command-key and clicking the mouse button.

Command-key The key with the Apple symbol and/or the cloverleaf on it.

Commands Built-in 4th DIMENSION procedures and functions.

Conjunction operator An operator used in a compound search to combine simple search conditions, i.e., “and,” “or,” and “except.”

Control-of-flow The order in which statements in a procedure are executed. The If and Case of programming structures are used to modify control of flow.

Current record The record upon which data management operations, such as modifying or saving, are performed. There is one current record for each file.

Current selection The records upon which operations that require a group of records are performed. For example, the following operations use the current selection: listing, sorting, and reporting. The current selection is commonly displayed in an output layout. Each file has its own current selection. The current record is always in the current selection.

Custom menu A menu created in the Menu editor.

Data The information stored in a database.

Data entry The process of entering information into a database. Data is entered in the User or Runtime environments.

Data entry order The order in which enterable areas are selected when pressing the Tab key during data entry. The entry order can be set in the layout editor.

Data file The disk file that contains all the data and indexes in a database.

Data type A specification that determines the kind of information that is stored in a field or variable. The data types are Alphanumeric, Numeric, Date, Time, Boolean, Picture, and Pointer.

Data validation The process of determining whether data entered is appropriate. Data validation methods include range checking, entry filters, use of choice lists, and monitoring data entry using procedures.

Database An integrated information management system. A 4th DIMENSION database consists of data, layouts, procedures, files, relations, menus, and so forth.

Date field A field type, which allows entries of dates between 100 AD and the year 32,767. Dates are entered in month/day/year format.

Debugger A window in 4th DIMENSION that is used to examine procedures as they execute. The debugger is very useful for determining the cause of programming errors.

Debugging The process of eliminating errors in a database or application.

Default value An initial piece of information that is automatically entered into a field when a new record is first displayed. For example, a sequence number generated by 4th DIMENSION can be used as a default value.

Descending order A particular sort direction that goes from high to low. For example, Z to A, latest to earliest, and so forth.

Design environment The part of 4th DIMENSION in which databases are designed. The Design environment consists of the Structure, Layout, Procedure, Password, Menu, List and Style editors.

Designer One of two users that are created automatically in the Passwords editor. The Designer is the only user who has access to the Design environment.

Detail area The part of a report in which records are listed individually.

Detail marker The triangle in the vertical ruler of the Layout editor that is used to size the Detail area.

Detail row The row in the Quick Report editor in which the formatting for a column is specified.

Development The process of creating an application.

Dial An active object that displays a numeric value as a portion of a semicircle. *See also* Thermometer *and* Ruler.

Dialog box A window of fixed size in which information is entered or displayed. You cannot switch to another window while a dialog box is open.

Display format A format that is used when information is displayed on a layout. A display format does not affect the way the information is stored, only how it is presented.

Display only A field attribute that prevents users from entering data into a field. "Display only" fields are not included in the data entry order and can only be assigned values using the language.

During phase The phase of the execution cycle that takes place when a field or object is modified.

Editor An integrated system of tools used to design or access a specific aspect of a database.

Element *See* Array element.

Enter in list A mode in the User environment in which the output layout can be used to enter and modify information.

Enterable An attribute of an active object that allows the user to select the object and enter a value.

Enterable related field A field from a related file on a layout that is enterable. By default, fields from related files are enterable, but this can be modified on a field-by-field basis.

Entry filter A data validation technique used to examine an entry on a character-by-character basis.

Entry order *See* Data entry order.

Environment A general term used to describe a part of 4th DIMENSION. 4th DIMENSION has three environments: Design, User, and Runtime.

Excluded list A data validation technique that specifies values that cannot be entered into an enterable area.

Execute To run a procedure.

Execution cycle The system that monitors when layout procedures and scripts are executed. The execution cycle consists of a series of phases.

Export The process of transferring records out of 4th DIMENSION.

External object An active object on a layout that is controlled by an external procedure.

External procedure A procedure written outside 4th DIMENSION in a programming language that compiles to 68000 code. External procedures are moved into 4th DIMENSION to provide extended capabilities.

Field An area in which you store information about a particular attribute. For example, Last Name, Address, City, and State might be fields in a Contacts file.

Field attributes Global properties assigned to a field. Field attributes are assigned in the Field dialog box in the Structure editor. The attributes are Indexed, Can't modify, Display only, Unique, and Mandatory.

Field type A property of a field that determines the kind of data it can store. Field types are Alpha, Text, Integer, Long Integer, Real, Date, Time, Boolean, Picture, and Subfile.

File The basic structure in which records are stored.

File procedure A procedure that is associated with a file and is automatically executed whenever any input layout belonging to the file is used.

File structure The system of files in the database and any relations that exist between the files.

First page An automatic button action used only in an input layout. It changes the display to the first page of the layout but does not accept the record.

First record An automatic button action used only in an input layout. It accepts the record and changes the display to the first record in the selection.

Fixed frame (multiple records) A printing format for included layouts. It specifies that the size of the included layout remains constant. If there are more records than fit within the included layout, the parent layout is repeated until all included records are printed.

Fixed frame (truncated) A printing format for included layouts. It specifies that the size of the included layout remains constant and that any records that don't fit within the included layout are not printed.

Flowchart editor An editor used to write procedures or scripts graphically as a series of steps and tests.

Footer area The area that appears at the bottom of each page in a printed report.

Footer marker The triangle in the vertical ruler of the Layout editor that is used to size the Footer area.

Formula A one-line statement or expression written in the Formula editor that returns or assigns a value.

Formula editor The dialog box used to build a formula. The formula editor appears in several places including Search by Formula and Apply Formula.

Full-page layout An input layout for a file or subfile that is displayed when a record in an included layout is double-clicked.

Function A procedure or command that returns a value.

Global procedure A type of procedure that can be called by other procedures or functions or be attached to custom menu items. A global procedure that returns a value is a function.

Global update A modification of the records in the current selection. A global update is done using the Apply Formula menu item in the User environment or the APPLY TO SELECTION command in the language.

Global variable A variable whose value is available to all procedures in the database. *See also* Local variable.

Graph area An active object on a layout that displays a graph.

Graphic objects Objects created in the Layout editor that serve only as decoration. They do not process data or perform actions. For example, lines, rectangles, and circles are graphic objects.

Grid object A type of graphic object that displays a series of rows and columns.

Group A collection of users and/or other groups used in the Password access system. Groups are assigned access to different parts of the database.

Group owner The user who can control the membership of a group.

Guest A user of a password protected database that has not been assigned specific access privileges.

Header area The area that appears once per page at the top of a printed report.

Header marker The triangle in the vertical ruler of the Layout editor that is used to create and size the Header area.

Header row The row in the Quick Report editor that is used to control the contents of the header in a printed report.

Highlight button A type of button that inverts (black becomes white and white becomes black) when it is clicked but is otherwise invisible.

Import The process of transferring records into 4th DIMENSION.

Included layout A type of object in a layout that displays a list of records from a subfile or another file.

Index An internal table that is built and maintained by 4th DIMENSION to speed searches and sorts. 4th DIMENSION builds and maintains an index if the Indexed field attribute is checked.

Indexed search A search that uses an index. An indexed search is faster than a sequential search. *See also* Sequential search.

Indicators A general term that describes three types of active objects—thermometers, rulers, and dials.

Input layout A layout that displays one record at a time and is commonly used to enter and modify data.

Integer field A field type that stores only whole numbers between $\pm 32,767$.

Invisible button A type of button that is transparent and does not highlight when it is clicked. Invisible buttons are generally placed in front of graphics. This placement creates the illusion that the user is clicking on the graphic.

Key field A field that uniquely identifies a record. A key field is commonly used in a relation to identify the related record in the One file.

Keywords A set of symbols, words and phrases that are used frequently in programming. Keywords appear in the Keywords panel in the Procedure editor.

Last page An automatic button action used only in an input layout. It changes the display to the last page of the layout but does not accept the record.

Last record An automatic button action used only in an input layout. It accepts the record and changes the display to the last record in the selection.

Layout A form composed of fields, variables, buttons, and other objects. You work with your data through layouts.

Layout editor The editor in the Design environment in which you design layouts and access scripts.

Layout menus A menu bar associated with a particular layout. Layout menus are displayed when the associated layout is used in either the User or Runtime environments. Layout menus are appended to the current menu bar.

Layout procedure A procedure associated with a layout that executes automatically whenever the layout is used. Layout procedures can be used to establish default values, process information, or post data to other files.

Layout template One of eight designs used to create a layout. A layout template is commonly used to generate layouts quickly.

List A series of items that can be used in a database for look-ups, data validation, and other purposes.

"List of files" window The window in the User environment used to change files and layouts.

Listing editor The editor used to write procedures as a sequence of statements.

Lists editor The editor in the Design environment used to create lists.

Local variable A variable that can be used only within a single procedure. A local variable is cleared after the procedure executes.

Logical operator An operator used to compare two values, for example, "is equal to," "is greater than," and so forth.

Long integer field A field type that stores only whole numbers between $\pm 2,147,483,647$.

Loop A programming structure that executes the same statements repeatedly until a condition is met.

Mail merge The ability to combine the contents of fields with a form letter. To create a mail merge document, fields or variables are embedded in a text area on a layout.

Mandatory A field attribute that requires that a value be entered before the record can be accepted.

Many file One of the two files in a relation. Several records in the Many file are related to a specific record in the One file.

Many-to-one relation An association between two files in which a record in the One file is selected by matching the value of a field in the Many file with the related field in the One file.

Marquee A flashing rectangle that is drawn with the Arrow tool in the Layout editor. Drawing a marquee selects the objects enclosed or intersected by the marquee.

Master file The file to which a layout belongs.

Menu editor The editor in the Design environment in which you create custom menus and assign global procedures to menu items.

Multi-page layout An input layout with two or more pages (screens). Buttons can be used to move from page to page.

Multi-user A mode in which several people can use the same database simultaneously. In multi-user mode, 4th DIMENSION automatically handles possible conflicts that can arise when two or more people try to access and modify the same record.

Network A system of hardware and software that connects more than one computer.

Next page An automatic button action used only in an input layout. It changes the display to the next page of the layout but does not accept the record.

Next record An automatic button action used only in an input layout. It accepts the record and changes the display to the next record in the selection.

Numeric field A field that contains numbers. A numeric field can be of the type Integer, Long integer, or Real.

Object Any item on a layout. Layout objects can be active objects, which perform an action, or graphic objects.

On Background A display format for a picture field in which the picture is placed on top of any background object and can be moved by the user.

One file One of the two files in a relation. Each record in the One file is related to many records in another file (the Many file).

One-to-many relation A relation between two files in which several records in the Many file are selected by matching the value of a field in the One file with the related field in the Many file.

Only if Modified An attribute applied to an active object that restricts script execution to when the object is modified during data entry.

Operator A symbol which represents an operation. For example, a plus sign (+) is an operator which will add two numbers together.

Output layout A layout that is used to show several records in the form of a list or report.

Parameter See Argument.

Parent file The file to which a subfile belongs.

Parent record The record in a file to which subrecords belong.

Password A series of characters that a user must enter in order to gain access to a password-protected database.

Password access privileges Permission granted to users to use various parts of a database, including: layouts, menus, procedures and file operations.

Password access system The system of passwords, Users and Groups that controls access to various parts of a database.

Password editor The editor in the Design environment in which you create users, groups, assign passwords to users, and monitor the use of the database.

Permanent sort A reordering of records that is done with the Sort File command. The Sort File command permanently reorders the records on disk.

PICT A standard Macintosh format for storing object-oriented graphics.

Picture field A field type that can store bit-mapped or object-oriented pictures.

Pointer A data type in the programming language that points to where information is stored.

Pop-up menu A menu on a layout that appears when you click the object and hold down the mouse button.

Previous page An automatic button action used only in an input layout. It changes the display to the previous page of the layout but does not accept the record.

Previous record An automatic button action used only in an input layout. It accepts the record and changes the display to the previous record in the selection.

Primary sort field The first sort field in a multi-level sort. If there is only one sort field and that field is indexed, the sort is very fast.

Procedure One or more lines of code that are written in the Procedure editor. A procedure can be a global, layout, or file procedure. A global procedure that returns a value is a function.

Procedure editor An editor in the Design environment used to write procedures. The procedure editor can be either a Listing editor or a Flowchart editor. The Listing editor shows procedures as lines of text, and the Flowchart shows procedures graphically as steps and tests.

Quick Report An editor in the User environment that is used to create and print tabular reports with Break areas and summary calculations.

Radio buttons A series of one or more small round buttons used to represent information. The radio buttons may be controlled by the language or may show the value in a Boolean field. Only one radio button in a series can be "on" (highlighted).

Radio picture A series of one or more transparent buttons used to represent information. Each button usually has a graphic behind it. When the user clicks on one picture (i.e., button), the other buttons are turned "off" (not highlighted) and the clicked button stays highlighted.

Range checking A data validation technique in which minimum and maximum values are compared against an entry. When data is entered, 4th DIMENSION determines whether the entered value is above the minimum value and below the maximum value and alerts the user to an error.

Real field A field type that stores numbers which can contain decimal points.

Record A basic unit of information in a file. For example, a record can correspond to a person, a company, an invoice, a product in an inventory file, and so forth.

Related field The field to which a relation is established. If the relation is One to Many, the related field is in the Many file. If the relation is Many to One, the related field is in the One file.

Relating field The field which establishes a relation. If the relation is One to Many, the relating field is in the One file. If the relation is Many to One, the relating field is in the Many file.

Relation An association between two files. A relation is based on matching values between a field in each file. A relation is used to allow the files to share information. A relation is created by drawing a line from the relating field in the Many file to the related field in the One file.

Report layout A layout designed for printed reports, rather than display on screen. A report layout may have Break areas and summary calculations.

Required list A list of items against which an entry in a field is compared. The entry must be in the list or the entry is not accepted.

Routines Commands and functions in the 4th DIMENSION language.

Ruler (active object) An active object in which the value is represented by the position of a marker on a ruler.

Ruler (in Layout editor) A measurement grid on the sides of the layout editor for positioning objects.

Runtime application A database customized with menus that runs in the Runtime environment or with 4th DIMENSION Runtime.

Runtime environment One of the three work environments of 4th DIMENSION. The Runtime environment is where you use a database that has custom menus.

Runtime version A version of 4th DIMENSION for using a database with custom menus. The runtime version can only be used to manage data. It cannot be used to design a database. The runtime version is equivalent to the full 4th DIMENSION without the Design or User environments.

Scaled-to-fit picture A format used to display and print pictures. The format scales the picture to fit within a specified area.

Scatterplot A two-dimensional plot of points. The location of the points is determined by the two values assigned to the horizontal and vertical axes.

Script Instructions written in the 4th DIMENSION language that are "attached" to an active object in a layout. Scripts are used to manage the active object. Scripts are generally short.

Scrollable area An active object in a layout that is used to display an array. A scrollable area appears as a list that the user can scroll through and select from.

Search The process by which a group of records is selected.

Search by Formula A search method in which the search condition is described by a formula.

Search by Layout A search method in which a layout is displayed as a search window. The search condition is specified by typing values into fields.

Search condition A logical statement that instructs 4th DIMENSION to find one or more records based on the values in a field or fields. For example, "Last Name is equal to 'Smith'" is a search condition that instructs 4th DIMENSION to find all records with the string "Smith" in the Last Name field.

Search editor A general-purpose search method that can be used to do simple or compound searches, limit the search to the current selection, and save search conditions to disk.

Secondary sort fields In a multi-level sort, the first sort field is the primary sort field and the remaining fields are the secondary sort fields.

Selection *See* Current selection.

Sequential search An unindexed search. In a sequential search, 4th DIMENSION examines each record in a file or selection.

Serial port A connector on the Macintosh used to communicate with printers, modems, and other devices. The 4th DIMENSION language contains commands to control communications through the serial port.

Set A temporary representation of a selection of records. Sets are used in the language to manipulate several selections at the same time.

Sort A reordering of records, usually performed before displaying or reporting.

Sort editor The editor in which the user can specify the fields to sort on.

Sort field A field that is the basis of a sort. A sort can be done on several sort fields or on formulas. *See also* Primary sort field *and* Secondary sort field.

Sort File A sort method in which the records in a file are sorted permanently.

Sort order The order in which the records are arranged after a sort.

Sort Selection A sort method in which the current selection of records is sorted. A sort selection is temporary.

Splash screen The graphic that is displayed when a user enters the Runtime environment or uses the application using 4th DIMENSION Runtime.

Startup procedure A global procedure that is executed automatically when a user opens a database.

Statement One line of code in a procedure.

Structure editor The editor in the Design environment that is used to create files, fields, subfiles, and relations among files.

Structure file The disk file that contains all the information about the design of the database—fields, files, layouts, menus, procedures, lists, and so forth—but not the data or the indexes.

Styles editor The editor in the Design environment in which formats and entry filters can be written and named as styles.

Subfield A field in a subfile.

Subfile A file that is automatically attached to a record in a parent file. Each record in the parent file stores a different subfile.

Subrecord A record in a subfile.

Subtotal The sum of fields in a report break. A subtotal is the sum of the values for the fields since the previous break.

System variables Variables that are automatically created by 4th DIMENSION. The OK system variable is frequently used to determine whether an operation has completed successfully.

Tab key The key on the keyboard normally used to move from field to field during data entry.

Template See Layout template.

Text area A graphic object in a layout that contains text. A text area may also contain embedded field names.

Text field A data type that can hold up to 32,000 characters. A Text field can be displayed on an input layout with a vertical scroll bar.

Thermometer An active object in which a value is represented by the length of a bar.

Time field A field type, which allows entries of times. Times are entered in HH:MM:SS format.

Tools palette The palette of 22 drawing tools in the Layout editor window.

Total row The row in the Quick Report editor in which summary calculations for all the records is calculated.

Transaction A series of data management operations.

Unique A field attribute that requires that each value for the field in each record be different.

User environment The environment that you use to manage data. In the User environment, you can enter, modify, and import data; search and sort records; create and print reports, labels, and graphs; and export data.

Validation See Data validation.

Variable An area in memory that holds a value. The contents of a variable are not stored in the database. A variable can be either a global variable or a local variable.

Variable frame A printing format for included layouts, pictures, and text. It specifies that the size of the area on the layout can grow to accommodate the size of the included layout, picture, or text when the layout is printed.

Wildcard (@) The symbol used in 4th DIMENSION to represent any other characters.

X-axis The horizontal scale in a two-dimensional graph

Y-axis The vertical scale in a two-dimensional graph.

MASTER INDEX

⌘	Command	} Keys
⇧	Shift	
⌥	Option	
⌃	{ Control } Cmd	

MASTER INDEX

This is a combined index. It contains entries for the five manuals which describe 4th DIMENSION.

Each page reference in this index is prefixed by a letter which represents the manual to which it refers.

D – Design Reference

Q – Quick Start

L – Language Reference

T – Tutorials

U – User Reference

Cast of characters

! (exclamation point), for placeholder character D153
 # (inequality operator) L111–113
 # (number sign)
 #D (current date) D156
 #D (date of printing) U113
 #H (current time) D156
 #H (time of printing) U113
 #N (sequence number) D156
 #P (sequential page number) U113
 as comparison operator U58
 for numeric style U109
 in Alpha field format D141–142
 in Break row labels U106–107
 in entry filter T65
 in entry filter code D150, D152–153
 in number display format D137
 in numeric data format U109–110
 in Quick Report editor T161
 # (search comparator) L196
 # (search conjunction) L195, L196
 \$ (dollar sign) L23
 in local variables T92
 in number field D138
 in numeric data format U109–110
 % (modulo operator) L109
 & (ampersand)
 AND operator L114
 exclusive superimposition L115
 for scientific notation D139
 in entry filter T65
 in entry filter code D150
 search conjunction L195, L196
 () (parentheses), as dead characters D154
 * (asterisk)
 as multiplication operator L109, L18
 as repetition operator L109
 as resize operator L115
 for scroll bar display L251

in number display format D137
 search parameter L196
 with PRINT SELECTION L68
 *+ (horizontal scaling) L115
 */ (vertical scaling) L115
 + (plus sign)
 addition operator L109, L18
 concatenation operator L109, L18
 horizontal concatenation L115
 horizontal move L115
 - (hyphen), in filter arguments D150
 - (subtraction operator) L109, L18
 .. (periods), in range D284
 / (division operator) L109, L18
 \ (vertical concatenation) L115
 \ (vertical move) L115
 [(bracket), with filename in procedure D226
 \ (longint division operator) L109
 ^ (caret), in number display format D137
 ^ (exponentiation operator) L109
 _ (underline), placeholder as D153
 ` (accent mark/reverse apostrophe), as comment mark L28, T91, T200
 {} (curly braces)
 in arrays L101
 in subroutines L57
 versions 1.0 vs. 2.0 L376
 | (exclusive superimposition) L115
 | (OR operator) L114
 | (search conjunction) L195, L196
 | (vertical bar)
 for number display format D139
 in Alpha field format D142
 with style name D158–159
 ~ (tilde), in entry filter code D150
 : (colon), in case structure L30–31
 := (assignment operator/gets symbol)
 L22–23, L108, T77, T80
 ; (semicolon)
 in filter arguments D150
 in number field D138
 with parameters L56
 < (less than operator) L111–113
 < (less than symbol), for embedded fields or variables D213
 < (search comparator) L196, U58
 <<< (angle brackets), in number field D137
 <<Add Sort>> marker U96, U103
 <= (less than or equal to) L111–113, U58
 <= (search comparator) L196
 = (equality operator) L111–113
 = (search comparator) L196
 > (greater than operator) L111–113
 > (greater than symbol), for embedded fields or variables D213
 > (greater than) U58
 > (greater-than sign), for ascending sort T206

> (search comparator) L196
 >= (greater than or equal to) L111–113, U58
 >= (search comparator) L196
 @ (at symbol)
 as search wildcard T150
 as wildcard character D54, U51–52, U59
 for writing procedures D226
 in filter arguments D152

A

Abbreviated date T17
 Abort button
 in Debug window L74
 in Syntax Error window L73
 ABORT command L363
 Abs function L339–340
 accent mark/reverse apostrophe ('), for comments L28, T91, T200
 Accept button D172, U27, U29, U61
 ACCEPT command L157
 "Access denied" alert box U13–14
 access hierarchy D257–258
 nesting access groups D265
 removing nested groups D265
 Access pop-up menu D267, D268, D269
 access system. *See* password access system;
 password access privileges
 ACCUMULATE command L161, L165
 for break processing U88
 Action pop-up menu D167
 button actions on D171
 for buttons L40
 in creating buttons T27, T29
 active editor, menus and D19
 active objects D69–70, T25. *See also*
 buttons; layout objects; objects
 adding to layout D98–100, D163–168
 as variables L24
 Create Active Object icon/tool T24, T172
 creating D166
 defined D129
 display formats for D167
 duplicating D104–105
 keyboard equivalents for D248
 modifying D166
 on grid D178–180
 scripts and D161–163, D167–168, L37, L38–44
 specifications for D70–71
 types of D169–179
 using on report layout T172–177
 Add Field icon/tool D86, D98, D116, T55, T78, T171
 Add Formula button, in Sort editor U79, U80

- add operations, access to D269
- ADD RECORD command L69, L141–143
 - in custom menu L61–62
 - in procedures T201, T203–204
 - in Repeat loop L33, L120
 - in While loop L32, L119
 - procedure example using L28
- ADD SUBRECORD command L226–227
- Add To Included button D173, D182
- Add to Layout menu command (Layout menu) D88, D116, T38
- Add to Line button
 - in Label editor Q65
 - in Label layout U122
- ADD TO SET command L278
- adding a menu D242–243
- adding list items D281–282
- adding records U57–69
- adding text, in Quick Report layout U99
- addition operator (+) L18, L109
- Administrator T214, T217
 - as group owner D260
 - in access hierarchy D259
 - system maintenance role D270–271
- After function L180
- After phase L47
 - for importing records L52
 - in data entry L48
 - in included layout L49, L50
 - in output layout L50
- alert box
 - “Access denied” U13–14
 - for excluded value U42
 - in data validation T71
 - Mandatory field U37–38
 - Unique field U38
 - Validation range U38–39
- ALERT command L239
 - in If...Else...End if structure L119
 - parameter passing with L56–57
 - with pointers L94
- Align Center/Vertical icon/tool T13
- Align Right icon/tool T13
- Align to Grid menu command (Object menu) D89, D104
- Align Top icon/tool
 - for adding new field T56
 - in duplicating buttons T29
- aligning layout objects D101–104
- Alignment icons/tools D101–102
 - on layout palette D87
 - using T12–15
- ALL RECORDS command L184, L69, T206
- ALL SUBRECORDS command L228–229
- Alpha field formats D141–142
- Alpha field D43–44, Q9, Q10, U32
 - entering data into U32
 - in graphs U130

- search conditions in U56
- searching for Q45
- setting length for D153
- symbol for Q11
- Alpha Indirection L377
- Alpha object formats D167
- alphabetical sort order Q46–48
- alphanumeric information Q9
- ampersand (&)
 - AND operator L114
 - exclusive superimposition L115
 - for scientific notation D139
 - in entry filter T65
 - in entry filter code D150
 - search conjunction L195, L196
- and, with search conditions T146–148
- And (conjunction operator) U52, U53
- angle brackets (<<<), in number field D137
- Append button
 - for importing records Q32–33
 - in data import U148
- Append document function L300–301
- Append Item menu command D244, D247, T190
- Append Menu menu command D243, T189
- Apple ImageWriter
 - for labels U124
 - for quick reports U114
- Apple menu L257, T189
 - with custom menu bars D239, D242
- application icon, double-clicking on Qix applications L60–68
 - assigning groups to T220–221
 - building L13
 - importing records from Q30–33
 - runtime D10–11, T186, T187–194
 - Search editor in T204–206
 - transferring data to and from U145–150
 - User environment vs. L64–66
 - with complete automation L67–68
- Apply Formula menu command U6
 - for global updates U72
- Apply Formula editor U63
- APPLY TO SELECTION command L186, L69
- APPLY TO SUBSELECTION command L229
- Arctan function L344
- area graphs L172, U129
- argument, in entry filter code D150, D151–152
- arguments L27. *See also* parameters
- arithmetic operations. *See* calculations
- arithmetic operators L18
- ARRAY BOOLEAN command L355–357
- ARRAY DATE command L355–357
- array elements L80
 - naming L100
 - pointers to L87, L90

- ARRAY INTEGER command L355–357
- ARRAY LONGINT command L355–357
- array names L101
- ARRAY PICTURE command L355–357
- ARRAY POINTER command L91, L355–357
- ARRAY REAL command L90–91, L355–357, L376
- ARRAY STRING command L355–357
- ARRAY TEXT command L80, L81, L355–357
- ARRAY TO LIST command L361
- ARRAY TO SELECTION command L362
- arrays D175–176, L41, L80–86
 - changing elements in L43
 - creating L80
 - defined L80
 - elements of L80
 - grouped L85–86
 - managing L354–362
 - naming L101
 - pointers to L87, L91
 - storing database structure in L316–317
 - versions 1.0 vs. 2.0 L376, L377
- Arrow icon/tool D99
 - for selecting a layout object D92, D93
 - on layout palette D86
- arrow keys, for writing procedures D225
- arrow pointer, for modifying flowchart D234
- ascending sort order Q46, Q47
- ascending vs. descending sort order U78, U80
- ASCII codes L385–386
 - for delimiters U146
 - in Import Data dialog box Q31
 - in system variables L384
- ASCII data, Macintosh vs. PC L303
- ASCII driver
 - for labels U124, U125
 - for quick reports U114
- Ascii function L333
- ASCII map L303, L314, U7, U145, U151–154
 - creating U151–154
 - default U152
 - saving U154
 - using U147
- ASCII Map dialog box U147
- ASCII printer, printing to U116
- assignment operator/gets symbol (:=) L22–23, L108, T77, T80
- “Associate with menu bar #” dialog box D188
- asterisk (*)
 - as multiplication operator L18, L109
 - as repetition operator L109
 - as resize operator L115
 - for scroll bar display L251
 - in number display format D137

search parameter L196
with PRINT SELECTION L68
at symbol (@)
as search wildcard T150
as wildcard character D54, U51–52, U59
for writing procedures D226
in filter arguments D152
attributes. *See* field attributes
audit trail “Can’t modify” fields for D47
Auto button, for included layout area D187
Auto column width U96–97, U102–103
automatic break processing U88
automatic buttons D170–173
for layout D81–82
automatic column sizing U102
automatic database repair D293
automatic file naming D39
automatic layout designs D80
automatic relations D53, T101. *See also* related files
creating records with D58
current selection and U48
data integrity with D59
deselecting T108
indexed fields for D61
manual relations vs. D53
One to Many T126
search and sort operations with D50
searching and U50
subfile use vs. T130
testing T113–114
wildcard look-ups with D56–57
automatic saving Q11, Q21
automatic searching Q44–45
automatic updating U70–72
Average (summary calculation) U107, U108
Average function L345, L346

B

background display U36, U37
backing up D8
before sorting U81
Backspace (Delete) key
for deleting flowchart objects D235
for deleting objects D107–108
bar graph, creating Q67
BEEP command L262
Before and During phase L47
DISPLAY SELECTION and L51
in output layout L50
MODIFY SELECTION and L51
Before function L178

Before phase L46, L47
DISPLAY SELECTION and L51
for exporting records L51
for layout reports L52
in data entry L48
in included layouts L49, L50
MODIFY SELECTION and L51
Before selection function L190–191
Before subselection function L231–232
bit-mapped graphics
entering into Picture field U35–37
in Picture fields D45
bold type
as field attribute indicator Q11
in tutorial format Qiv
Boolean data type L16, L105
Boolean expressions L19, L20
in branching structure L29, L30, L31
in Search by Formula U62
in While loops L32–33
test objects with D229–230
Boolean field D45
choosing search condition from U57
display formats D142–144
entering data into U34–35
in data entry order U28
lists vs. D277
Boolean field radio button, radio button
object vs. D175
Boolean values, in procedures L28
Boolean variables L21
Border submenu D89, D111
borders
designing T9–10
for included layout D187
setting lines D91–92
setting patterns D111
bracket ([), with filename in procedure D226
branching structures L29–31
Break area U105
adding D203–204
defined T167
establishing D195–196
in Layout editor T170
in Quick Report editor T155, T160–161
in reports D194, D195, D205, D206, D207
in screen display D193, D197, D198
subtotal script for T174–177
Break field, sorting on U87
Break field value, inserting in Break row U99
break header, defined T167
Break Header area T170–171
Break Header lines
adding D203–204
deleting D204
in report example D206

Break Header marker T170–171
BREAK LEVEL command L161, L164–165, U88
break levels
in quick reports U87–89, U103, U105
multiple D201–202
role of U87
setting U105–106
sort levels and T157–158
Break lines
adding D203–204
deleting D204
in report example D206
Break marker D197, D204, T169
break processing L160–161, L380, U88
Break rows U105
Graph editor and U114
hiding U110
in Quick Report editor U97
inserting U105–186
inserting text in U99
labels for U106–107
summary calculations in U107, U108, U109
breakpoint L78
breaks
defined D200, T157
reports with U85
Bring to Front icon/tool T13
browsing Q42
buffer, receiving data from L311
bullets, syntax errors marked with D226, D227, D235
Button Text area D165
BUTTON TEXT command L234
buttons L39–40
adding to layout T23–32
aligning T29
as active objects D129
automatic D170–173
automatic layout D81–82
customizing D126, D127
duplicating and editing T27–29
for included layouts D182
keyboard shortcuts for D82, D165
on control panel Q26
on layout template U27, U28
pointers to L89
radio D174–175
script example for L9
setting with pointers L92–93
variables and L24
Buttons area, in Formula editor U71

C

calculating a total
 in quick report T160
 scripts for T177
 calculation icons U108–109
 calculations
 adding to quick reports U107–109
 in Break area U105
 in Quick Report editor U96, U97
 in reports D200–203, D207
 in standard reports U87–89
 scripts for D207
 searching and U62–63
 with dates Q10
 with Quick Report editor Q58–60
 Can't modify attribute D47, T63
 Cancel button U27, U30
 creating T28–29
 for abandoning record D172
 for ending data entry U68
 for stopping search L192
 in creating fields D43
 in data entry Q29
 in Formula editor U72
 in Sort editor U79
 in standard interface D126
 keystroke equivalent for D82
 loop and T203–204
 on Search by Layout screen Q44, Q45
 to cancel search U60, U61, U63
 CANCEL command L158
 CANCEL TRANSACTION command L297
 canceling printing L160
 capitalization
 in passwords T216, T222
 procedure for T89, T91–93
 scripts for D161
 tilde character for D150
 caret (^), in number display format D137
 carriage return
 as record delimiter U146
 ASCII code for Q31
 text export or import and L213, L214
 Case of...Else...End case structure L29,
 L30–31, L118
 in execution cycle L47
 with arrays L42
 in setting buttons L92
 case sensitivity, in passwords D262, U13
 cells, in Quick Report editor U97, U98
 CHANGE ACCESS command L315
 CHANGE PASSWORD command L315–316
 Change string function L328–329
 channel, setting L306–308
 Char function L334
 character filters, variables and L21
 character reference symbols L326–327

character translation, ASCII map for
 U151–154
 characters
 as placeholders D153
 dead D154
 in filter arguments D150, D151, D152
 selecting Q34
 Check box L40
 check boxes D173–174
 formatting Boolean fields as D143–144
 in data entry order U28
 lists vs. D277
 CHECK ITEM command L259–260
 check mark, in Debug window L77–78
 "Choice of mode" palette U37
 Choice List window U40
 choice lists
 creating T50–52
 data entry with U39–42
 example of D276
 Excluded U42
 for data entry D148
 for Title field T68–69
 modifiable U41–42
 modifying T51–52, T58
 placing on layout T54–57
 role of D275, U40
 search conditions on U57
 testing T57–58
 using T49, T50–52, T57–58
 variables and L21
 Choices attribute D48, T52
 Choices check box D148
 Choose File/Layout menu command U4–5,
 U17, U18
 Choose File/Layout dialog box T31, U18
 List of Files window vs. T70
 Choose Graph menu command (Report
 menu) Q66
 Choose Labels menu command (Report
 menu) Q63
 Choose Print Layout dialog box Q51, L66,
 U86, U89
 Chooser, printer selected in U87, U89, U125
 Clear menu command D26, D107–108,
 D235
 for removing search condition U57
 for search condition T146, T148, T149
 Clear Last button, in Label layout U123
 CLEAR SEMAPHORE command L293
 CLEAR SET command L278
 CLEAR VARIABLE command L353–354
 clicking, defined Qix
 Clipboard
 copying lists to D282
 copying objects to D106
 pasting to menu from T193–194
 placing deleted objects on D107, D108
 viewing contents of D26

cloning a database D7
 close box, for closing layout windows Q21
 Close button, for report script T173
 CLOSE DOCUMENT command L301
 Close *Editorname* menu command D25
 CLOSE WINDOW command L255
 closing a window D20
 code L27
 modularizing L56
 object identifiers in L98–103
 preparing for compiler L380–382
 Collapse button D22, D23
 for layout name T88
 colon (:), in case structure L30–31
 color, setting L236
 Color menu command D89
 color display
 automatic relation lines on D63
 changing D111–112
 color monitor, graph patterns on U133
 Color submenu D89, D112
 column graphs L172, U129
 column header, in Quick Report editor U97
 column indicators, in Quick Report editor
 U96
 column width cursor U103
 columnar reports D199. *See also* quick
 reports
 columns
 adding U100
 assigning formulas to U102
 creating for reports Q53–55
 deleting U101
 inserting U101
 Quick Report U98
 relabeling U102
 replacing U101
 setting numeric formats for U109–110
 sizing U102–103
 sorting on U103
 width of U96–97
 Command key Q42
 for creating border D111
 for deleting extra Break marker T169
 for highlighting records U25
 in Debug window L75, L76
 in keyboard equivalents D247, D248
 reserved key combinations D248
 command parameters L129–132
 command syntax L129
 Command-1
 for included layout frame D187
 for adding to field T56
 Command-click
 for selecting object D100
 for selecting records Q42
 Command-Left Arrow, for previous record
 D82

Command-N, for menu shortcut T192

Command-period

- as Cancel button equivalent D82
- to cancel data entry U30
- to cancel search U60
- to end data entry U68

Command-Right Arrow, for next record D82

commands (menu). *See specific menu commands*

commands (language) L27

- ABORT L363
- ACCEPT L157
- ACCUMULATE L161, L165, U88
- ADD RECORD L61-63, L69, L119, L120, L141-143, T201, T203-204
- ADD SUBRECORD L226-227
- ADD TO SET L278
- ALERT L119, L239
- ALL RECORDS L69, L184, T206
- ALL SUBRECORDS L228-229
- APPLY TO SELECTION L69, L186
- APPLY TO SUBSELECTION L229
- arguments to L27
- ARRAY BOOLEAN L355-357
- ARRAY DATE L355-357
- ARRAY INTEGER L355-357
- ARRAY LONGINT L355-357
- ARRAY PICTURE L355-357
- ARRAY POINTER L91, L355-357
- ARRAY REAL L90-91, L355-357
- ARRAY STRING L355-357
- ARRAY TEXT L80, L81, L355-357
- ARRAY TO LIST L361
- ARRAY TO SELECTION L362
- BEEP L262
- BREAK LEVEL L161, L164-165, U88
- BUTTON TEXT L234
- CANCEL L158
- CANCEL TRANSACTION L297
- CHANGE ACCESS L315
- CHANGE PASSWORD L315-316
- CHECK ITEM L259-260
- CLEAR SEMAPHORE L293
- CLEAR SET L278
- CLEAR VARIABLE L353-354
- CLOSE DOCUMENT L301
- CLOSE WINDOW L255
- CONFIRM L240
- COPY ARRAY L358, L87
- CREATE EMPTY SET L276
- CREATE RECORD L208-209
- CREATE RELATED ONE L223
- CREATE SET L276
- CREATE SUBRECORD L227-228
- DEFAULT FILE L69, L87, L90, L134-136, T200, T205, T206
- defined T198
- DELETE DOCUMENT L302

DELETE ELEMENT L359

DELETE RECORD L211

DELETE SELECTION L187

DELETE SUBRECORD L228

descriptions of L128-129

DIALOG L242

DIFFERENCE L279-280

DISABLE BUTTON L89, L235-236

DISABLE ITEM L260

DISPLAY RECORD L146

DISPLAY SELECTION L143-146

DUPLICATE RECORD L209

EDIT ACCESS D270-271, L315

ENABLE BUTTON L89, L235-236

ENABLE ITEM L260

ERASE WINDOW L246

EXECUTE L364

EXPORT DIF L212-213

EXPORT SYLK L212-213

EXPORT TEXT L69, L212-213

FIELD ATTRIBUTES L322-323

FIRST PAGE L147

FIRST RECORD L188

FIRST SUBRECORD L230

FLUSH BUFFERS L323

FONT L237

FONT SIZE L237

FONT STYLE L238

FORM FEED L169

GET HIGHLIGHT L149-150

GOTO AREA L151

GOTO RECORD L268

GOTO SELECTED RECORD L268-269

GOTO XY L246

GRAPH L173-174, U130, U7

GRAPH FILE L176-177, L69

GRAPH SETTINGS L175

high-level language and T198

HIGHLIGHT TEXT L150-151

IMPORT DIF L213-214

IMPORT SYLK L213-214

IMPORT TEXT L69, L213-214

in multi-user databases L289-290

INPUT LAYOUT L69, L137, T201, T205

INSERT ELEMENT L358

INTERSECTION L280-281

INVERT BACKGROUND L151

LAST PAGE L147

LAST RECORD L189

LAST SUBRECORD L230

LIST TO ARRAY L81, L83-84, L360

LOAD RECORD L291

LOAD SET L284

LOAD VARIABLE L353

MENU BAR L259

MERGE SELECTION L188

MESSAGE L243-245

MESSAGES OFF L246-247

MESSAGES ON L246-247

MODIFY RECORD L69, L141-143, T57, T124-125, U6

MODIFY SELECTION L69, L143-146, T205

MODIFY SUBRECORD L226-227

NEXT PAGE L147

NEXT RECORD L189-190

NEXT SUBRECORD L231

NO TRACE L365

OLD RELATED MANY L225

OLD RELATED ONE L225

ON ERR CALL L73, L365-366

ON EVENT CALL L366-368

ON SERIAL PORT CALL L309

ONE RECORD SELECT L272

OPEN WINDOW L253-254

OUTPUT LAYOUT L64, L66, L67, L68, L69, L138, T206, T207

PAGE SETUP L169

PLAY L262

POP RECORD L272

PREVIOUS PAGE L148

PREVIOUS RECORD L190

PREVIOUS SUBRECORD L231

PRINT LABEL L69, L159, L160, L170-171

PRINT LAYOUT L159, L160, L167-168

PRINT SELECTION L66, L67, L68, L69, L159, L163-164, T207

PRINT SETTINGS L168-169

PUSH RECORD L271

QUIT 4D L363

READ ONLY L292

READ WRITE L292

RECEIVE BUFFER L311

RECEIVE PACKET L304-305

RECEIVE RECORD L312

RECEIVE VARIABLE L313

REDRAW L158

REJECT L153-154

RELATE MANY L221-223

RELATE ONE L218-221

REPORT L159, L162-163, L69

role of L27, T77-78

SAVE OLD RELATED ONE L225

SAVE RECORD L210

SAVE RELATED ONE L224

SAVE SET L283

SAVE VARIABLE L352

SEARCH L5, L64-65, L67, L69, L192, L194-199, T205

SEARCH BY FORMULA L69, L192, L200-201, T150, U6, U53, U62-63

SEARCH BY INDEX L192, L201-203

SEARCH BY LAYOUT L69, L193, T143, T150, U6, U53, U58-60

SEARCH SELECTION L192, L200-201

SEARCH SUBRECORDS L192, L203
 SELECTION TO ARRAY L81, L85–86,
 L361–362
 SEND PACKET L302–303
 SEND RECORD L311–312
 SEND VARIABLE L313
 SET CHANNEL L306–308
 SET CHOICE LIST L155
 SET COLOR L236
 SET ENTERABLE L156
 SET FILTER L155
 SET FONT L90
 SET FORMAT L156–157
 SET TIMEOUT L310
 SET WINDOW TITLE L256
 SORT ARRAY L86, L91, L357
 SORT BY FORMULA L204–205
 SORT FILE L69, L206–207, U6, U81
 SORT SELECTION L64, L65, L67, L68,
 L69, L205–206, T206–207
 SORT SUBSELECTION L207
 START TRANSACTION L297
 TRACE L365, L73
 UNION L281–282
 UNLOAD RECORD L291
 USE ASCII MAP L69, L314
 USE SET L277
 User environment menus vs. L69
 VALIDATE TRANSACTION L297
 versions 1.0 vs. 2.0 L378–379
 Command–Space bar, for “List of files”
 window T70, T113, T124, T135, U20
 comments L28, Txv
 in Procedures T91, T200
 in text area T137
 in tutorials Qiv
 communications, ASCII map for U151–154
 comparators, in search L195, L196
 comparison operators L111–113, U51–52
 in Search by Layout U58–59
 in search condition U50
 in search conditions T144
 symbols used for U58
 compiler, preparing code for L380–382
 compiler directives L381–382
 compound searches T143–150, U52
 by layout U58, U59–60
 creating search condition U57
 for modifying records U60–61
 concatenation operator (+) L18, L109
 CONFIRM command L240
 in While loop L32
 Confirmation dialog box L240
 conjunction (AND) operator (&) L114
 Conjunction area, in Search editor U55, U57
 conjunctions U52
 in Search and Modify U60, U61
 in Search by Layout U59

 in search conditions T146–148
 in search L195, L196
 constants L106–107
 as expressions L19
 Continue button, in Syntax Error window
 L73
 control buttons, and variables L21
 control lines. *See* output control lines
 control markers D196–197
 adding D203–204
 control panel
 current selection on U48
 custom buttons for T23–32
 for modifying records Q34–36
 in standard interface D126–127
 on data entry screen Q26
 on layout template U27, U28
 Search U59
 control scrollable areas, variables and L21
 control thermometers, and dials, rulers,
 variables and L21
 control-of-flow statements L28
 COPY ARRAY command L358, L87
 Copy menu command D26, D106, D282,
 U31
 for adding buttons T40
 for menu item D249
 copy operations, entry filter and U39
 copying
 a menu D248–249
 layout objects D104–106
 lists D282
 Cos function L344
 Count, as summary calculation U107
 Count fields function L318
 Count files function L318
 Count parameters function L369
 counters L33
 in For loops L121
 Create Active Object icon/tool D86, D98,
 D166, T172, T24
 Create document function L299–300
 CREATE EMPTY SET command L276
 create operations
 database Q3–21
 fields Q8–11
 labels Q63–65
 layouts Q15–21
 CREATE RECORD command L208–209
 CREATE RELATED ONE command L223
 CREATE SET command L276
 CREATE SUBRECORD command L227–228
 create-file dialog box L299
 for label design U121
 for new database D4
 for saving formulas U102
 for saving search condition U57
 Quick Report designs in U95

Criteria area
 in Search editor U55, U56
 in Sort editor U79, U80
 crosshair/crossbar pointer D99
 for creating active object D166
 for included area D185
 for placing field D132
 in flowchart area D231
 curly braces ({})
 as array reference L101
 in subroutines L57
 versions 1.0 vs. 2.0 L376
 Current date function L335
 current record, changing during data entry
 L140–146
 current selection U47–48. *See also* Select
 menu
 data export and U149
 printing records in U85–87
 quick reports from U93–116
 search conditions for U50
 sorting records in U78, U80–81
 updating records in U70–72
 Current time function L338
 Current user function L316
 cursor types. *See* pointers
 custom applications, Runtime environment
 for D10–11
 custom buttons D126, D127
 for included layouts D182
 saving in Scrapbook D105–106
 custom data entry order, creating D119–122
 custom interface, automatic buttons for
 D170–173
 custom layouts D127–129, D92–114
 example of D67
 for labels D211–213
 custom menus D239–251, L61–63, L258,
 U7–8
 adding “splash screen” to D250, D251
 adding to menu bar D242–243
 copying and moving D248–249
 creating D188–189, D240–245
 creating menu items for D244
 deleting D249
 designing D239–240
 equivalent menu commands L69
 for layouts D187–189
 for master procedure L54
 keyboard equivalents for D247–248
 maximum number of D239
 maximum title length D243
 previewing D250
 runtime applications and D251
 User environment vs. L64–66
 Custom Menus menu command T193
 custom picture, for picture graph U133–134
 Custom search dialog box L243

custom windows L248
 customizing
 adding buttons to layout T23–32
 adding fields T49, T52–57
 data entry order T41–45
 data validation T61–72
 menus T185–194
 multi-page layouts T35–40
 report layouts T165–180
 using Layout editor T5–19
 using lists T49, T50–52, T57–58
 using procedures T87–95
 using scripts T76–81
 Cut menu command U31
 for deleting an object D108
 for menu item D249
 for moving an object D26
 for removing search condition U57
 cut operations, entry filter and U39
 cut-and-paste operations, for copying
 buttons T40
 C_BOOLEAN L381, L382
 C_DATE L381, L382
 C_INTEGER L381, L382
 C_LONGINT L381, L382
 C_PICTURE L381, L382
 C_POINTER L381, L382
 C_REAL L381, L382
 C_STRING L381, L382
 C_TEXT L381, L382
 C_TIME L381, L382

D

damage repair D293
 data addition operator L18
 data attributes, setting L154–157
 data buffers, flushing L323
 data constants L107
 data entry U26–44. *See also* data validation
 Accept button U29
 adding records U57–69
 Cancel button U30
 changing order of T41–45
 Choices lists for T49, T50–52, U39–42
 commands for L140–158
 common layout for Q18
 controls on. *See* data entry controls
 Delete button U31
 editing during U31
 enterable areas U28–29
 Enterable layout attribute for D76
 execution cycles in L46, L48–49
 field types and U32–38
 from text file Q30–33
 in fields with attributes U37–38
 in included layouts D181–182, U42–44

 in output layout U25–26
 in related files D54
 input layout elements U26–27
 interrupting U31
 layout templates U27–28
 menu commands vs. buttons for D187
 modifying records U57, U69–70
 navigation buttons U30
 page navigation buttons U30
 scripts and L38
 to a subfile T135–138
 updating records U57, U70–72
 User environment for D10
 with entry filter U39
 with Excluded list U42
 with validation range U38–39
 data entry areas, using L149–154
 data entry controls. *See* data validation
 data entry order D118, U28–29
 in groups D121–122
 restoring D122
 standard D122
 standard vs. custom D118–119
 viewing and changing D119–122
 data entry screen Q26
 data exporting L212–213
 data files D5–6, U10
 automatic repair of D293
 backing up D8
 duplicating D7
 name of U10
 periodic updates of U29
 remote U10–11
 updating D290–291
 data formats, variables and L21
 data import and export U145–150
 ASCII map for U151–154
 User environment for D10
 data importing L213–214
 data integrity, in related files D59–60
 Data Interchange Format (DIF) files U146
 data management L184–191
 for old data L224–225
 User environment for Q25
 data management operations U3–4
 data objects, getting information on
 L369–371
 data types L104–105, L16–17. *See also*
 specific types
 converting L105
 data entry and U32–37
 in expressions L19
 data validation D146–157, T61–72
 adding a validation range T66–67
 capitalization procedure T91–93
 checking T70–72
 default values D156
 enterable and mandatory attributes
 D147

 entry filters D149–155, U39
 excluded values D279
 for defining objects D165
 for enterable objects D167
 in Field Definition dialog box D131
 lists for D148–149, D275, D276–280
 maximum and minimum values D155
 non-sequential range of values
 D279–280
 required list for T68–69
 required values D278–279
 setting entry filter T64–66
 using field attributes for T62–63
 validation range U38–39
 variables and L21
 database applications. *See* applications
 database folders D3
 database operations, setting preferences for
 D26–28
 database structure D31–35
 creating D35–64
 creating new fields D40–43
 creating related files D60–63
 field types D43–46
 files in D32–35
 for new file D38–39
 multiple-file D33–34
 renaming a file D39–40
 single-file D32–33
 Structure editor D36
 subfiles D34–35, D46
 updating D290–291
 databases
 adding fields to T49, T52–57
 adding files to T101, T103–105
 adding records to U29
 advantages of Qvi
 automatic repair of D293
 backing up D8
 building applications for L13
 combining files in T101
 components of Qvi, Qvii, Q3
 creating D3–4, D24, Q3–21
 data files D5–6, U10
 defined D31, D34
 duplicating D7
 elements of U10
 external routines in D176
 flat-file D33
 layouts of Qvii
 maximum size of D34
 naming Q5
 opening D5, D24, Q11, U10
 password access to T213–223
 password-protected U12–13
 periodic updates of U29
 permanent sorting of U81
 runtime applications T186, T187–194

- sample Qx
- searching U47, U49–63, T150
- startup environment for D27
- structure commands L316–323
- structure files D5, D6, U10
- types of Qv, Qviii
- date
 - adding to quick report U113
 - creating a script for T174
 - default value for T81
 - entry format Q27
 - script for D207
- date comparison operators L112
- date data type L16, L104
- date expression L19, L20
- date field display format T16–18
- Date field formats D134–135
- Date fields D45, Q9, Q10
 - entering data into Q27, U33
 - in graphs U130
 - symbol for Q11
- date functions L335–337
- date operators L110
- date variables L21
- Day number function L336
- Day of function L337
- dead characters D154
- Debug window L73, L74
- Debugger L72, L73–78
 - development role of L12
 - expressions in L19
- debugging L72–78
- Dec function L340
- decimal number display format T18
- decimal numbers, Real field type for D44
- decimal point display D137
- decimal points, Real field type for Q10
- default ASCII map U152
- Default box T81
- default data entry order D118, T41
- default delimiters U146
- DEFAULT FILE command L69, L87, L90, L134–136, T205, T206
 - in procedure T200
 - procedure example using L27–28
- default file or field names Q8
- default font size, for layout D73
- default justification D109
- default layout attributes, Enterable related fields D76
- default layout settings, establishing D108, D109
- default layouts U17, U18
- Default menu bar, in Runtime environment D251
- Default message window L244
- default Procedure editor D219
- default startup environment D27

- default values D156, T75, T81
- defaults
 - for exporting text L213
 - setting L134–138
- Define Grid menu command D88, D103
- “Define grid” dialog box D103
- Define Ruler Units menu command D88, D97
- “Define units” dialog box D97
- Delete (Backspace) key, for deleting objects D107–108
- Delete button U27, U31, U73
 - for layouts D83
 - in Sort editor U79
 - in standard interface D126
- Delete Column menu command U101
- Delete menu command (Items menu) D282
- DELETE DOCUMENT command L302
- DELETE ELEMENT command L359
- Delete Included button D173, D182
- Delete Item menu command (Menu menu) D250
- Delete key U31
- Delete Last Sort menu command U105
- Delete Last Sort menu command (Other menu) Q56
- Delete Menu menu command D249
- delete operations, access to D269
- Delete Page menu command D88, D116
- Delete Record button D82, D172
- DELETE RECORD command L211
- DELETE SELECTION command L187
- Delete string function L330
- DELETE SUBRECORD command L228
- deleting a flowchart object D235
- deleting a layout page D116
- deleting a sort field U105
- deleting layouts D83
- deleting list items D282
- deleting menu items D250
- deleting objects D26, D107–108
- delimiters, end-of-record/end-of-field U146
- descending sort order Q46
- Design menu command
 - for modifying procedure T202
 - for report layout T167
- Design menu command (Use menu) U5
- Design environment D9, Q5
 - access through T223
 - access to D259, U13
 - adding users and groups in T215
 - Alpha field length set in U32
 - arrays and L41
 - as default startup D27
 - checking in User environment T30–32
 - development role of L12
 - editors in D12–18
 - for creating labels U119

- for custom menus U7–8
- for Runtime applications D11
- for saving layout changes U17
- included layouts specified in U43
- layout specifications in L136
- Menu editor L61–62
- modifying layout in T5
- moving to and from D11
- Procedure editor L62–63
- specifying update interval in U29
- User environment vs. Q25, Q26
- design errors L72
- Design menu
 - Layout menu command D71, D84, D90, D222, D268, Q16, Q19, T42, T94
 - Lists menu command D280, T50
 - Menu menu command D241, D266–267, T188
 - Passwords menu command D261, D271, T215
 - Procedure menu command D220, D267
 - Rename File menu command D269
 - Structure menu command T52
 - windows on D19
- design of report, saving Q57
- Designer T214, T217
 - assigning password to D260
 - entering system as T223
 - in access hierarchy D259
 - password for T221
 - system maintenance role D270–271
- desktop
 - defined Qix
 - remembering D28
- desktop files D5–6
- detail and break instructions T157–158, T160–161
- Detail area
 - creating a script for T173
 - defined T167
 - establishing D195
 - for embedded fields or variables D213
 - in Layout editor T170, T173
 - in Quick Report editor T155, T161
 - in reports D194, D205, D206
 - in screen display D193, D194, D197, D198
- Detail cell, numeric format for U109–110
- Detail marker T169, T170, T171
- detail row U97
 - formula results for U102
 - hiding U110
 - in Quick Report editor Q54
- development L12
- dialog boxes Qx
 - expanding and collapsing lists in D22–23
- DIALOG commands L242

dials D165, D176–177, L43
 entering data with U29
 variables and L24
 DIF files U146
 DIFFERENCE commands L279–280
 Direct ASCII driver U114
 for labels U124, U125
 printing to U116
 DISABLE BUTTON command L89,
 L235–236
 DISABLE ITEM command L260
 Disabled check box D247
 Disjunction (OR) operator L114
 disk file
 printing to U94, U114, U116
 saving search condition as U57
 display formats
 customizing D134–146
 entry filter and T64, T65–66
 for Alpha fields D141–142
 for Boolean fields D142–144
 for buttons D171
 for Date fields D134–135
 for included layout area D182–183,
 D186
 for number fields D136–140
 for objects D164
 for Picture field U35–36
 for Picture fields D144–146
 for Time fields D135–136
 in Field Definition dialog box D131
 selecting D28
 setting T15–19
 Display only attribute D47, D147, T78
 DISPLAY RECORD command L146
 DISPLAY SELECTION command L143–146
 execution cycle L51
 displayed file, changing D23–24
 divided lists D277
 division operator (/) L18, L109
 document reference L299
 Document system variable L298, L383
 documents
 exporting or importing with L212–214
 opening L306–308
 working with L298–302
 dollar amounts
 entering Q27
 Real field type for Q10
 dollar sign (\$) L23
 in local variables T92
 in number field D138
 in numeric data format U109–110
 “Double clickable” check box
 deselecting D182
 for included layout area D186, D187
 double-clickable included layouts U43

double-clicking
 as shortcut T18
 defined Qix
 for output layout Q20
 in output layout U25
 dragging, method of Qx
 drawing icons/tools, using T9–12
 Duplicate menu command D7, D89D105
 Duplicate icon/tool D87, D105, D234
 in creating buttons T28
 DUPLICATE RECORD command L209
 duplicating a database D7
 duplicating layout objects D104–105
 during function L179–180
 during phase L46, L47
 DISPLAY SELECTION and L51
 external areas and L44
 for layout reports L52
 in data entry L48
 in included layout L49, L50
 in output layout L50
 MODIFY SELECTION and L51
E
 “Edit an ASCII map for importing/
 exporting” dialog boxes U151–154
 Edit a Formula menu command U101, U102
 EDIT ACCESS command D270–271, L315
 Edit button
 in Debug window L74
 in Syntax Error window L73
 Edit Formula button, in Sort editor U79
 Edit Group menu command D263
 Edit Group dialog box D263, T217
 Edit Input ASCII Map menu command
 U147, U7
 Edit menu D25–26, L257, U5
 Clear menu command D26, D107–108,
 D235, T146, T148, T149, U57
 Copy menu command D26, D106,
 D249, D282, T40, U31
 Cut menu command D26, D108, D249,
 U31, U57
 Delete Column menu command U101
 Hide Line menu command U110
 Insert Break menu command U105–106
 Insert Column menu command U101
 Paste menu command D26, D106,
 D249, D282, T40, U31, U35–37
 Select All menu command D106, D26,
 U25, U73
 Show Clipboard menu command D26
 Undo menu command D26, D108, T7,
 T29, U31
 with custom menu bars D239, D242
 Edit Output ASCII Map menu command
 U7, U147

Edit Styles button D157
 Edit User menu command D263, T221
 Edit User dialog box D261–262, D263,
 D271, T216, T221
 editing U31. *See also* modifying records
 in Quick Report layout U99
 in text areas D113, D114
 in Text field U33
 Editing area
 in Formula editor U71, U72
 in Listing editor D223
 editing buttons T27–29
 editor windows D19–21
 closing D25
 printing contents of D25
 saving D25
 Else statements L30–31. *See also*
 If...Else...End if; Case of...Else...End case
 embedded fields and variables D213–214
 ENABLE BUTTON command L89, L235–236
 ENABLE ITEM command L260
 Enabled check box D247
 in Menu editor T192
 End for statement L33, L34
 End if statements L28, L30–31
 procedure example using L28
 End selection function L191
 End subselection function L232
 end value, in For loop L121
 End while statement L32, L34
 end-of-field/end of record delimiters U146
 in Import Data dialog box Q31
 Enter button D82
 for accepting modified record U69
 for accepting new record U68
 in standard interface D126
 Enter in List menu command U26, U6,
 U69–70
 Enter in List mode U23, U24, U25–26
 for modifying records U69–70
 Enter key
 as Enter button equivalent D82
 for adding or saving record Q28, U26,
 U29, U68
 for checking syntax D226–227, D235
 to begin search U60
 Enter menu U6
 Apply Formula menu command U6,
 U72
 Enter in List menu command Q36, U26,
 U6, U69–70
 Modify Record menu command Q34,
 T19, T57, T124–125, T136, U6
 New Record menu command Q26,
 T114, U26, U6, U67–68
 Enter Password dialog box T222, U12–13

- enterable areas U27, U28–29
 - entry filters in U39
- Enterable check box D186, D187
- Enterable layout D76, D147, T68, U42
- enterable objects D169–170
 - adding scroll bars to D157
 - as active objects D129
 - assigning lists to D148–149
 - choosing display formats for D167
 - data entry controls for D146–157, D167
 - entry filters for D149–155
 - in data entry order D120
 - printing with variable frame D159–160
- enterable or not enterable, variables and L21
- entering data. *See* data entry
- entering records Q26–29
- Entry Filter box D150
 - entering styles in D158–159
- entry filters D149–155, T64–66, U32
 - Alpha field and U32
 - arguments in D151–152
 - codes used for D150
 - data entry with U39
 - dead characters in D154
 - defined U39
 - display characters for D153
 - examples of D154–155
 - initiating D150–151
 - placeholders in D152–153
 - selecting as style D28
- Entry Order menu command D87, D119–120, D121, D122, T42
- entry order pointer D119
- environments D8–11. *See also specific environments*
 - Design Q5, Q25, Q26
 - single-user vs. multi-user D289–290
 - startup D27
 - switching between U5
 - User Q25, Q26, Q51, Q63
 - users' access to D259
- EPSF graphics U35
- equality operator (=) L111–113
- ERASE WINDOW command L246
- erasing. *See delete operations; specific operations*
- error correction D293
 - execution D227, D235
 - in Append list Q33
 - in copying buttons T29
 - in data entry U31
 - in formulas D235
 - in Layout editor T169, T7
 - in Procedure editors D225, D226–227, T201
 - in Quick Report editor Q56
 - removing extra field Q10
 - syntax D235

L416

- Undo menu command for D26
 - with alignment icons/tools T14
- error message, in password access system D256–257
- error messages L387–391
- error procedure L365–366
- Error system variable L384
- errors, types of L72
- Ethernet U8
- event procedure L366–368
- Except (#), in searching L195, L196
- Except (conjunction operator) U52, U57
- exclamation point (!), for placeholder character D153
- Excluded check box D149
- Excluded list, data entry with U42
- Excluded lists D279
- exclusive superimposition (&) L115
- EXECUTE command L364
- Execute Procedure menu command U7, U141–142
- Execute Procedure dialog box U141
- executing procedures, User environment for D10
- execution cycle L10, L37, L46–52
 - “Only if modified” check box and D168
 - commands controlling L363–367
 - general rules L48
 - monitoring L178–182
 - scripts and L38
 - testing L118
- execution errors D227, D235
- Exp function L340
- Expand button D22, D23
 - for included layout D186
 - for layout name T88
 - in Procedure dialog box D221
- exponentiation operator (^) L109
- Export Data menu command U4, U147, U149
- Export Data dialog box U149–150
- EXPORT DIF command L212–213
- Export list U150
- EXPORT SYLK command L212–213
- EXPORT TEXT command L69, L212–213
- exporting data U145–147, U149–150
 - ASCII map for U151–154
 - User environment for D10
- expression types L19
- expressions L19–20
 - constants L106–107
 - data types L104–105
 - evaluating L75–76
- external areas D176, L44
 - naming procedure for D165
- external procedures L26, L26, L44
 - defined D176
 - in Formula editor U71
 - object identifiers with L102

F

- False function L349
- Field area
 - drawing T55
 - in Formula editor U71
 - in Search editor U55
 - in Sort editor U79
 - field attributes D41, D46–48, Q8, Q9, Q10
 - changing D48–49
 - data entry and U37–38
 - for data validation T62–63
 - lists as D276
- FIELD ATTRIBUTES command L322–323
- Field Attributes dialog box Q6–7
- Field Definition dialog box D130–131, T16–17, T18
 - “Print variable frame” check box in D159
 - assigning lists in D149
 - for creating script D161, D221
 - for opening script D223
 - for Titles list T68–69
 - in adding new field T55
 - in creating a subfile T132
 - in setting entry filter T64, T66, T67
 - in writing a script T79
 - selecting field from D132–133
 - using default value in T81
- Field dialog box D42–43, Q8
 - field attributes set in D46
 - for specifying attributes T62
 - in creating a subfile T131
 - in writing a script T78
- Field for Filename dialog box. *See* Field dialog box
- Field function L90, L321
- field labels Qvii
 - creating T56
 - in input layout Q18
 - in output layout Q21
- Field list, in Field Definition dialog box D131
- field names D32, D41, L99
 - changing D48
 - for reports T175
 - in columnar reports D199
 - in quick reports U100
 - in search condition T144, U50
- Field Selection box, in Quick Report editor U96, U100, U101
- field types D32, D40, D43–46, Q8–9, Q11. *See also specific field types*
 - changing D48, D49
 - data entry and U32–38
 - data types and L17
 - for related fields D60

- Fieldname function L319–320
- fields. *See also* field attributes; field types
- adding to database T49, T52–57
 - adding to labels U121–122
 - adding to layout D73, T36, T38–39, T54–57
 - aligning T13–14
 - as active objects D129
 - assigning lists to D148–149
 - creating D40–43, Q8–11
 - creating labels for T56
 - data entry controls for D146–157
 - defined D31
 - display formats for D134–146, Qvii–viii
 - embedded D213–214
 - end-of-field delimiters U146
 - entry filters for D149–155
 - layout attributes for D147
 - layout specifications for D130–146
 - layouts with or without D69
 - modifying D48–49
 - modifying layout of D69, D133
 - moving between Q27, Q34, U26
 - placing values in T77
 - pointers to L87, L90, L90
 - related D50
 - relating vs. related D53
 - script example for L9
 - scripts with D162
 - searching in related files T149–150
 - selecting characters in Q34
 - selecting for layout D72, D73–79
 - selecting for printing Q53–55
 - setting display formats for T15–19
 - sort Q46
 - subfields D46, T129
 - subfiles as L99
 - symbols for Q11
- Fields box, in Label editor U120
- Fields list, in Listing editor D224, D226, D228
- file access. *See* password access privileges
- File attributes, access and T214
- File Attributes dialog box D39–40
- for assigning access D269–270
- File buttons, in Label editor U120
- file formats U146
- File function L320, L90
- file icon D39, T104
- file images
- moving D37–38
 - resizing D38
 - selecting D37
- File menu D24–25, L257, U4–5
- Choose File/Layout menu command U4–5, U17, U18
 - Close *Editorname* menu command D25
 - Duplicate menu command D7
- Export Data menu command U4, U147, U149
- Import Data menu command Q31, T112, U4, U147, U148
- New Database menu command D24, U4
- Open menu command D3, D5, U12, U95
- Open Database menu command D24, U4
- Page Setup menu command D24, U5
- Preferences menu command D157, D24
- Print menu command D24, Q51, Q56, T179, U5, U86, U89, U116
- Print Scripts menu command D25
- Print to menu command U113
- Quit menu command D242, D25, T188–189, T202, T222, U5
- Revert to Saved menu command D25
- Save menu command U95
- Save *Editorname* menu command D25
- with custom menu bars D239
- file operations, assigning access to D269–270
- file procedures L7, L10, L26, L26, L36
- creating D221
 - defined T87
 - role of D218
- file relations L215–224
- file server D293
- in multi-user mode U8, U9
- file/layout Procedures D221
- Filename function L319
- filenames D4, D40, L98, Q5
- changing Q6–7
 - data files U10
 - in Layout dialog box D90–91
 - in procedures D226
 - structure files U10
- files. *See also* related files; subfiles
- access to. *See* password access system
 - adding to databases T101, T103–105
 - changing displayed D23–24
 - choosing U17–20
 - creating D38–39
 - displaying information on T102
 - displaying menu of D24
 - importing data to U147–149
 - in New Layout dialog box D73–74
 - in Procedure editor T77, T90
 - included layouts from D77–79
 - layouts and D68
 - maximum per database T104
 - number of layouts for U17
 - parent T129
 - permanent sorting of U78, U81
 - pointers to L87, L90
 - Quick Report design U95
 - read-only/write-only L286, L292
 - related D49–64
 - renaming D39–40
 - role of U17
 - saving formulas as U102
 - selecting D37
 - sequence numbers in D156
 - specifying layouts for L136–138
 - subfiles D46
- Fill menu command D88
- fill pattern, choosing T10
- Fill Pattern submenu D110, T10, T11
- Find menu command D227
- Find Next menu command D227
- Finder, for duplicating a database D7
- First Page button D172, U30
- FIRST PAGE command L147
- First Record button D82, D172, U30
- FIRST RECORD command L188
- FIRST SUBRECORD command L230
- fixed-frame printing D211
- included layouts with D183, D184
- flat-file database D33
- FldDelimit system variable L384
- flow lines D230
- drawing D232–233
- Flowchart editor D14, D15, D219, D228–235, T76
- creating a procedure with D230–233
 - editing procedures in D233–235
 - modifying procedures in D234–235
 - role of D228–229
 - specifying first step in D233
 - using D230–235
- Flowchart formula editor D231–232
- Flowchart menu D230
- New Step menu command D230, D231
 - New Test menu command D230, D231
 - Set as Start menu command D230, D233
- flowchart objects, modifying D233–235
- Flowchart procedure type T89
- flowchart procedures
- editing D233–235
 - elements of D229–230
- FLUSH BUFFERS command L323
- Flush system variable, versions 1.0 vs. 2.0 L377
- folders D3, D4, U10
- for duplicate database D7
 - structure and data files in D5–6
- FONT command L237
- Font menu D89
- FONT SIZE command L237
- FONT STYLE command L238

- fonts/font size
 - for Header area T173
 - for layout D73
 - for menus D246
 - for objects D109, D89
 - for quick reports U100, U112–113
 - for quick reports U99–100, U112–113
 - for report elements T173
 - in input layout Q17
 - in Layout editor T171
 - in menus T192
 - in output layout Q19
- footer, defined T167
- Footer area
 - establishing D196
 - in Layout editor T169
 - in reports D194, D205, D206, D207
 - in screen display D193, D197, D198
 - running title for T178
- Footer line, in report example D206
- Footer marker D197, T169
- footers, for quick reports U111–113
- For loop L121, L33–34
 - with array pointer L91
- Foreground and Background dialog box U133
- FORM FEED command L169
- form letters D213–214
- Format area T16, T18
- Format box, in setting entry filter T65
- Format menu command D89, D166, D187
- Format display area, entering styles in D158–159
- “Format for an included layout” dialog box T134
- Format pop-up menu
 - date formats in D134–135
 - number formats in D136
 - picture formats in D144
 - time formats in D135–136
- Format submenu T16–17
- forms, imitating T36–37
- Formula editor D231–232, T150, U63, U71–72
 - editing flowchart in D235
 - for global updates U70–72
 - for quick reports U102
 - in sorting U80
- formulas. *See also* expressions
 - adding to quick report U102
 - creating D231–232
 - for global updates U70, U72
 - in Flowchart procedures D230
 - layout name change and D84
 - modifying D235
 - saving as files U102
 - searching by U53, U62–63
 - sorting on U80, U103
 - syntax errors in D235

- 4th DIMENSION
 - application icon D3
 - desktop files D5–6
 - installing Qx
 - interface in D18–28
 - memory use by D291
 - multi-user requirements U8–9
 - MultiFinder and D291, D292
 - opening Q4
 - optimizing performance of D292–293
 - programming in T198
 - quitting Q11
 - setting single- vs. multi-user environment for D289–290
 - starting D3–5
 - transferring data to and from U145–150
- 4th DIMENSION language
 - components of L16–24
 - traditional language vs. L6
- 4th DIMENSION runtime, in multi-user mode U8–9
- 4th DIMENSION version 1.0 L375–379
- frame, for quick report U96
- framing an included layout D187
- Full Page button D186
- Full Page layout T132, T135, T136
 - preventing display of D182
 - with included layout D181–182, D186
- full-page data entry, with included layout U43, U44
- full-screen window D20
- function names L102
- functions (in language) L326–349
 - Abs L339–340
 - After L180
 - Alert L87, L94
 - Append document L300–301
 - Arctan L344
 - Ascii L333
 - Average L345, L346
 - Before L178
 - Before selection L190–191
 - Before subselection L231–232
 - Change string L328–329
 - Char L334
 - Cos L344
 - Count fields L318
 - Count files L318
 - Count parameters L369
 - Create document L299–300
 - Current date L335
 - Current time L338
 - Current user L316
 - date L335–337
 - Date L335
 - Day number L336
 - Day of L337
 - Dec L340

- defined L57, T198
- Delete string L330
- During L179–180
- End selection L191
- End subselection L232
- Exp L340
- False L349
- Field L321, L90
- Fieldname L319–320
- File L320, L90
- Filename L319
- Get pointer L370, L93
- global procedures as T91
- In break L182
- In footer L182
- In header L181
- in procedures L28
- Insert string L329
- Int L340–341
- Is a variable L369–370
- Is in set L282
- Last area L152
- Layout page L148
- Length L327, L57
- Level L182
- Locked L290
- Log L341
- logical L349
- Lowercase L331
- mathematical L339–343
- Max L345, L346
- Menu selected L261
- Min L345, L347
- Modified L152
- Month of L337
- Not L349
- Num L341–342
- object identifiers with L102
- Old L224
- Open document L300–301
- Position L328
- Printing page L167
- Random L342
- Record number L267
- Records in file L185
- Records in selection L185
- Records in set L282–283
- Records in subselection L229
- Replace string L330–331
- Request L241
- role of T78
- Round L343
- Screen height L255
- Screen width L255
- Selected record number L268
- Semaphore L292–293
- Sequence number L270–271
- Sin L344

Size of array L360
 statistical L345–348
 Std deviation L348
 string L326–334
 String L332–333
 subroutines as L57
 Substring L327–328
 Subtotal L160, L166
 Sum L345, L347
 Sum squares L348
 Tan L345
 time L338–339
 Time L338
 Time string L339
 trigonometric L344–345
 True L349
 Trunc L343
 Type L371
 Undefined L354
 Uppercase L331
 Variance L348
 Year of L337

G

GET HIGHLIGHT command L149–150
 Get pointer function L93, L370
 gets symbol/assignment operator (:=)
 L22–23, L108, T77, T80
 global procedures L7, L11, L26, L54–58.
See also subroutines
 arrays in L41
 assigning to menu items D245
 creating D220–221, T91–93, T199–201
 defined T87
 example of L27
 executing U141–142
 for adding records T199–204
 for break processing U88
 for capitalization T91–93
 in custom interface D128
 in Formula editor U71
 menu items and D239
 requirements for T199
 role of D218–219
 using in scripts T94
 global updates U57, U70–72
 global variables L23
 naming L100
 system variables and L24
 GOTO AREA command L151
 GOTO RECORD command L268
 GOTO SELECTED RECORD command
 L268–269
 GOTO XY command L246
 graph areas D128–129, D176, L44
 Graph button U132
 GRAPH command L173–174, U7, U130

Graph dialog box Q66
 Graph editor U129–135
 menus U132
 printing quick reports to U114–115
 role of U4
 GRAPH FILE command L69, L176–177
 graph legends, versions 1.0 vs. 2.0 L377
 Graph Options dialog box U134–135
 GRAPH SETTINGS command L175
 Graph Type menu U132
 graphic objects D70
 adding to layout D98–100
 changing appearance of D108–109,
 D110–112
 text areas as D113
 graphics. *See also* Graph editor; graphs
 adding to menus T193–194
 entering into Picture field U35–37
 for splash screen D250, D251
 in Flowchart editor D228–229
 in Picture fields D45
 in reports U85
 Object icons/tools for D86
 using Layout editor: T9–12
 graphs L172–177, U129–135. *See also*
 Graph editor; graphics
 changing elements in U133
 changing picture in U133–134
 changing scaling in U134–135
 color and pattern in U133
 creating U130–135
 printing Q66–68
 printing to U116, U94
 types of Q67
 User environment for D10
 viewing U132
 greater than (>) U58
 greater than operator (>) L111–113
 greater than or equal to (>=) L111–113, U58
 greater than symbol (>), for embedded fields
 or variables D213
 greater-than sign (>), for ascending sort
 T206
 Grid Object dialog box D178–179
 Grid On/Off icon/tool D104, D87
 grid settings D103–104
 Group menu command D101, D89
 Group Name box D263
 Group Owner box D263
 group owners D260, T217
 system maintenance role D270–271
 grouped data entry order D121–122
 grouping custom menu items D240
 grouping layout objects D100–101
 grouping on the X-axis U130
 groups T214–215
 adding T217–218
 assigning password access privileges to
 D256, D266–270

assigning to applications T220–221
 assigning to operations D266–270
 assigning users to D264, T218–219
 creating D263–264
 in access hierarchy D257–258
 removing users from D264
 saving and loading D266
 viewing users list for D264
 Groups box T215
 Groups list
 adding users to D264
 in Password Access editor D261
 guests D260, U13

H

handles, around objects T7
 hard disk D292
 copying sample databases to Qx
 periodic updates on U29
 hardware recommendations D292–293
 header, defined T167
 Header area
 establishing D195, D196
 in Layout editor T170–171, T173
 in Quick Report editor T155
 in reports D194, D195, D205, D206,
 D207
 in screen display D193, D194, D197,
 D198
 Header lines
 adding D204
 in report D206
 Header marker D197, T170
 Header phase L46
 header row
 editing text in U99
 in Quick Report editor Q54, U97
 headers, for quick reports U111–113
 Hide Keywords divider D228
 “Hide keywords” check box D27
 Hide Line menu command U110
 Hide/Show Rulers menu command D88,
 D97
 hiding Quick Report rows U110
 hierarchical lists, expanding and collapsing
 D22–23
 highlight buttons D171, L40
 HIGHLIGHT TEXT command L150–151
 highlighting, in output layout U24–25
 horizontal concatenation (+) L115
 horizontal move (+) L115
 horizontal scaling (*+) L115
 hyphen (-), in filter arguments D150

I-beam pointer D225

icons

- 4th DIMENSION application D3
- defined Qix
- for layouts U18, U19
- for typed passwords U13
- in Layout editor window D85, D86–87
- in password display T222
- opening database with D5
- summary calculation U108–109

identifiers L98–103

If statement L28

- procedure example using L28

If...Else...End if structure L29, L30, L117

- in setting buttons L92–93
- with arrays L83
- with pointers L89

ImageWriter L168–169

ImageWriter Serial Driver dialog box U114

Import Data menu command (File menu)

- Q31, T112, U4, U147, U148

Import Data dialog box Q31, Q32, T112, U148

IMPORT DIF command L213–214

Import list U148

IMPORT SYLK command L213–214

IMPORT TEXT command L213–214, L69

importing data Q30–33, T113, U145–149

- ASCII map for U151–154
- User environment for D10, Q25

In break function L182

In Break phase L46, L47

- for layout reports L52

In footer function L182

In Footer phase L46, L47

- for layout reports L52

In header function L181

In Header phase L47

- DISPLAY SELECTION and L51
- for layout reports L52
- in output layout L50
- MODIFY SELECTION and L51

included layout area D129, D77–79

Included Layout dialog box D181–182, D185, D187

Included Layout icon/tool D86, D98, D185

included layouts D180–187, U42

- creating D181, D185–187, T122–123
- data entry with U42–44
- displaying D182–183
- double-clickable U43
- entering data in D181–182
- execution cycle L49–50
- for a subfile T134–135
- full-page layout and T135
- in data entry order U28

in reports D210–211, U85

- modifying D187
- preventing data entry in D182
- printing data in D183–185

Included Record buttons D173

inclusive superimposition (!) L115

increments, in For loops L121

indentation, in loop T203

Indexed attribute D47, Q9

- bold type display for Q11
- for related files D61
- Unique attribute and T63

indexed field

- searching and modifying U60–61
- sorting on Q46–47, U77

indexed search U50–51

indexes U10, U51

indicator settings, establishing D177

inequality operator L111–113

initiator, in entry filter code D150

input ASCII maps U147

Input check box D83

input layout Q15

- creating Q16–19
- for printing records Q52
- modifying records in Q34–36
- searching by Q44–45

INPUT LAYOUT command L69, L137, T205

- in procedure T201

Input Layout icon T70

- with included file T124
- with related file T113

input layouts. *See also* layouts

- adding records in U67–68
- changing data entry order on T41–45
- changing display format on T16–19
- deleting records from U72–73
- elements of U26–27
- establishing D82–83
- example of D68
- fast access to T70
- file procedures and D218
- for procedures T201
- for related files T108–111
- for subfiles T132–135
- icons for U18, U19
- importing data to U148–149
- included layouts as D180, D181, T122–123, U42–44
- lists with D276
- modifying records in U69
- multiple D69
- role of D68, U3, U23
- searching in U50, U58–60
- setting data attributes for L154–157
- sorting in U77
- template for D80, D81, U27–28
- using U26–44

Validate T70, T71

- viewing from output layouts U25

Insert Break menu command U105–106

Insert button

- for importing records Q33
- in data import U148

Insert Column menu command U101

Insert menu command (Items menu) D281

INSERT ELEMENT command L358

Insert Item menu command (Menu menu)

- D244, D247

Insert Menu menu command D243

Insert string function L329

installing 4th DIMENSION Qx

Int function L340–341

Integer field D44

- entering data into U32

interface D18–28

- design options for D125–129

interface objects, scripts and L38–44

interlocking lists D278

Interpreter, development role of L12

interrupt procedures, for serial port L309

INTERSECTION command L280–281

INVERT BACKGROUND command L151

invisible buttons D171, L40

invisible grid, using D103–104

invoice database, transaction example L294–297

Is a variable function L369–370

Is in set function L282

Items column T189

- adding list items to D281–282
- appending an item to T190–191
- deleting list items from D282
- lists in D281

Items list

- adding menu items to D244
- in Menu editor window D242

Items menu

- Delete menu command D282
- Insert menu command D281
- New menu command D281
- Sort menu command D285, T51

J, K

justification

- in quick reports U100, U112–113
- specifying D109–110

Key button D165, D168

Key dialog box D168

Keyboard button D248

Keyboard check box, for menu shortcut T192

Keyboard entry box D248

keyboard equivalents
 assigning D168
 for automatic layout buttons D82
 for buttons D165
 for menu items D247–248
 for radio buttons U35
 keyboard symbols, as entry filters T65
 KeyCode system variable L367, L384
 keystroke shortcuts. *See* keyboard equivalents
 Keyword area
 in Formula editor U71
 in Listing editor D223, D226, D228, T77, T90

L

label designs, saving and loading U121
 Label editor D211, D213, L170–171,
 Q63–65, U4, U119–121
 getting to U119
 print options in U125
 Label layout U120, U121–122
 Label page preview U120
 “Labels across”/“Labels down” boxes, in
 Label editor U120
 label width marker D212
 labels U119–125
 creating designs for U121–124
 for Break rows U106
 for output control lines D206
 in Quick Report layout U99
 output devices for U124–125
 previewing on screen Q65, U123
 printing D211–213, Q63–65, U125
 User environment for D10
 Labels menu command U7, U119, D213
 language definition L98–121
 LaserWriter L168–169
 Last area function L152
 Last Page button D172, U30
 LAST PAGE command L147
 Last Record button D82, D172, U30
 LAST RECORD command L189
 LAST SUBRECORD command L230
 Layering icons/tools, on layout palette D87
 layering objects D106–107
 layout areas, using L149–154
 layout attributes
 for related fields D76
 setting D147
 layout border, selecting T9–10
 Layout menu command D71, D83, D84,
 D90, D222, Q16, Q19, T5
 for assigning access D268
 for changing data entry order T42
 for testing a script T94

Layout dialog box D71, D90–91, Q16, Q19,
 T5, T6, T54
 changing layout name in D84
 deleting a layout in D83
 for included layout T122
 for opening a procedure D222
 for related file layout T108
 in setting entry filter T64
 input and output designations in
 D82–83
 shortcut to opening T24
 Layout editor D13–14, D73, D84–90, Q18,
 T5–19, T155, T168–172
 active objects created in D166
 Add Field icon/tool D132
 adding included layout with D181
 adding layout page in D115
 advantages of T165
 assigning lists in D148–149
 Create Active Object icon/tool D166
 creating scripts in D221
 drawing icons/tools T9–12
 elements of D85–90
 Font menu D89
 for adding new field T54
 for creating labels U119
 for custom menus U7–8
 for opening a script D222
 for reports D199
 getting to D90–91
 grouped arrays in L85–86
 grouping objects in D100–101
 in creating a subfile T132–133
 included layouts specified in U43
 label report layout in D212–213
 Layout menu D87–88
 layout palette D85, D86–87
 menus in D85, D87–90
 modifying layout in T5–9
 Object menu D88–89
 opening layout in D90–91
 output layout specifications in D193
 reverting to last version of D25
 role of D84, D85
 rulers in D96–98
 scripts assigned in D161
 setting display formats in T15–19
 Style menu D90
 templates in U27–28
 layout elements, multiple T29
 layout execution cycle. *See* execution cycle
 Layout Field dialog box, in setting
 validation range T66–67
 Layout Grid icon/tool D87, D99, D178
 layout icons/tools U18, U19
 layout management menu commands
 L157–158

Layout menu D87–88
 Add to Layout menu command D88,
 D116, T38
 Define Grid menu command D88, D103
 Define Ruler Units menu command
 D88, D97
 Delete Page menu command D88, D116
 Entry Order menu command D87,
 D119–120, D121, D122, T42
 Hide/Show Rulers menu command
 D88, D97
 Menu Bar menu command D88, D188
 Objects on Grid menu command D87,
 D178, D179
 Turn Grid On/Off menu command D88,
 D104
 layout menu bars L258
 customizing D188–189
 for executing procedures U141
 layout names L101
 layout object variables L24
 layout objects. *See also* active objects;
 objects
 active D69–70, D129
 adding to layout D98–100
 aligning D101–104
 changing T7–9
 changing appearance of D108–112
 copying all D105–106
 creating D166
 deleting D107–108
 deselecting D92, D93
 display formats for D167
 duplicating D104–105
 fields as D130, D133
 graphic D70
 grouping D100–101
 handling D92–114
 hidden
 layering D106–107
 managing L234–238
 modifying D166
 moving D94
 naming D164
 Object Definition dialog box D163–165
 resizing D95–96
 saving in Scrapbook D105–106
 scripts and L7, L8, T76
 scripts for D167–168
 selecting D92–94
 viewing D107
 Layout page function L148
 layout pages, managing L146–148
 layout palette D85, D86–87
 alignment icons/tools D101–102
 using D98–100

layout procedures L7, L10, L26, L36–37
 arrays in L41
 creating D221
 defined T87
 in data entry U32
 role of D218
 layout reports, execution cycle L52
 layout rulers T166, T167
 layout templates D80–82, Q17, Q19, U27–28
 for standard interface D126–127
 layout title, layout name vs. T8
 Layout window
 closing Q21
 expanding Q18, T6
 layouts L10, L36, Qvii–viii, Q15, U3. *See also* input layouts; Layout editor; layout objects; output layouts
 adding buttons to T23–32
 modifying T19, T5–9
 searching by T142, T150
 adding fields to T38–39, T54–57
 aligning T12–15
 assigning access to D268
 assigning lists to D148–149
 basic vs. customized D67
 buttons in D170–173
 changing data entry order on T41–45
 changing names of D84
 check boxes in D173–174
 choosing U17–20
 creating D71–82, D90–91, Q15–21
 custom menus for D187–189
 customizing D92–114, D127–129
 default L136–138, U17
 deleting D83
 designing T9–12
 elements of D68–69
 establishing D82–83
 execution cycles for L49–50
 exporting records through L51
 field display formats for D134–146
 fields and D69
 files and U17
 for data import or export U145
 for quick report U96
 full-page T132, T135, T136
 importing records through L52
 included U42–44
 maximum number per file U17
 modifying Q18
 Multi-line D181
 multi-page D114–116, T35–40
 naming D73
 page dimensions for D91
 parent U42
 placing fields in D132–133
 placing objects in D163–168

printing D91–92
 radio buttons in D174–175
 reporting using U85–89
 role of D68, U17, U23
 saving T12, U17
 searching in U58–60
 size of T36
 special management menu commands L157–158
 testing modifications to T19
 viewing D91
 Length function L327
 in subroutine L57
 less than (<) L111–113, U58
 less than or equal to (<=) L111–113, U58
 less than symbol (<), for embedded fields or variables D213
 Level function L182
 Line button
 for menu item separators D247
 in Label editor U120
 Line check box, in Menu editor T192, T193
 line graphs L172, U129
 Line icon/tool D98
 line of code L27
 Line Width submenu D110, D88, T10
 linked lists D277–278
 creating D282–284
 list
 creating output layout for Q19–21
 modifying records in Q36
 List button, activating T52
 List menu
 New menu command D280
 User Modifiable menu command D285–286
 “List of files” window T70, T71, U17, U19–20
 displaying T111, T135
 for included file record display T124
 hiding U20
 LIST TO ARRAY command L360, L41, L81, L83–84
 Listing editor D14, D15, D219, D223–228, T76–78
 hiding keywords in D27
 Search menu with D227–228
 syntax error checking in D226–227
 using D223–228
 Listing editor window, managing D228
 Listing procedure type T89
 for report layout procedure T173
 lists T49. *See also* Choices lists
 adding items to D281–282
 assigning D148–149
 Boolean fields vs. D277
 choice D148
 Choices attribute D48

copying D282
 creating D280, D282–284
 deleting items from D282
 designing D276–280
 excluded D149
 expanding and collapsing D22–23
 hierarchical
 linked D277–278, D282–284
 look-up D55–57
 maximum number of D275
 Required D148
 role of D275, D276
 size considerations for D276, D277
 sorting D284–285
 specifying ranges in D284
 user modifiable D285–286
 Lists menu command D280
 for creating a list T50
 Lists dialog box T52–53, T69
 Lists editor D17–18, D280, L63, T50–51
 deleting items from D282
 entering items in D281–282
 getting to D280
 in User environment D285
 role of D275
 Load button, in Formula editor U72
 Load Groups menu command D266
 load operations, access to D269, D270
 LOAD RECORD command L291
 LOAD SET command L284
 LOAD VARIABLE command L353
 loading a formula U63, U72
 loading a Quick Report design U95
 loading label designs U121
 local variables L22–23, T92
 in loops L34
 naming L100
 Locked function L290
 locked records L285, L287
 LockedSet system set L276
 Log function L341
 logic errors L72
 logical fields. *See* Boolean field type
 logical functions L349
 logical operators L114
 logical or Boolean values L16, L28
 Long integer field D45
 entering data into U32
 longint division operator (\) L109
 look-ups. *See* searching
 loop structures L32–34
 loops
 defined T198, T203–204
 for loading unlocked records L288–289
 Lowercase function L331
 in global procedure T91–93

- M**
- Macintosh applications, transferring data to and from U145–150
 - Macintosh ASCII data L303
 - Macintosh computer, basic operations for Qix–x
 - Macintosh editing operations
 - Edit menu for D25–26
 - for writing procedures D225
 - Macintosh error messages L390–391
 - Macintosh files, for new database D4
 - Macintosh hardware recommendations D292
 - Macintosh interface, standard interface and D126
 - Macintosh typeface, for menu items T192
 - Macintosh user guide, editing operations in U5
 - macros, scripts as D161
 - mail merge
 - documents D213–214
 - text areas for T176
 - mailing labels Q63–65. *See also* labels
 - Mandatory attribute D46–47, T62, U37
 - Mandatory attributes alert box U38
 - Mandatory field, entering data into U37–38
 - Mandatory layout attribute D147, T68
 - manual relations D53. *See also* related files
 - creating records with D58
 - data integrity with D59
 - search and sort operations with D59
 - Many file D51–52
 - selecting fields from D77–79
 - Many-to-One relation T103, T106
 - margins U120, U123
 - markers D196–197
 - marquee D93
 - master file
 - adding fields to layout in D117
 - selecting fields from D74–75, D214
 - master file fields, in Field Definition dialog box D133
 - master list, with nested list D277–278
 - master procedures L11, L54, L257
 - global procedures as D218
 - mathematical functions L339–343
 - mathematical operations. *See* calculations
 - Max function L345, L346
 - Maximum (summary calculation) U107, U108
 - Maximum and minimum values D155
 - Maximum box (validation range) T67
 - memory use D291
 - Menu Bar menu command D88, D188, L259
 - menu bars T17, T187
 - creating D241–242, L257
 - custom menus for D187–189, D239
 - deleting D241
 - previewing D250
 - restricted access D258
 - runtime applications and D251
 - splash screen for D250, D251
 - Menu Bars dialog box D241, D266–267, T188
 - Menu menu command D241, T188
 - for assigning access D266–267
 - Menu editor D16
 - assigning access groups in D267, T220
 - changing style with T192–193
 - entering menu titles and items in T189–191
 - for custom menus D188, L61–63
 - for enhancing menu system D245–246
 - for master procedure L54
 - getting to T188–189
 - previewing menus with T193–194
 - role of D240
 - Menu editor window D16, D242
 - adding to Items list in D244
 - for adding menus D243
 - menu items D239
 - adding separator lines to D247
 - assigning groups to D266–267
 - assigning procedures to D245
 - commands vs. L69
 - copying and moving D248–249
 - deleting D250
 - enabling or disabling D246–247
 - enhancing D245–248
 - for custom menus D244
 - global procedures and L11
 - keyboard equivalents for D247–248
 - selecting in data entry U31
 - Menu menu T189
 - Append Item menu command D244, D247, T190
 - Append Menu menu command D243, T189
 - Custom Menu menu command T193
 - Delete Item menu command D250
 - Delete Menu menu command D249
 - Insert Item menu command D244, D247
 - Insert Menu menu command D243
 - Show Custom menus menu command D250
 - Menu selected function L261
 - menu title, maximum length of D243
 - menus. *See also* specific menus
 - adding graphics to T193–194
 - components of L256–258
 - customizing T185–194, U7–8
 - enhancing D245–248
 - in custom interface D128–129
 - in User environment U4–7
 - managing L256–261
 - master procedures called from L54
 - maximum number of D239
 - previewing T193–194
 - Menus column T189
 - appending menu titles to T189, T190–191
 - Menus list, in Menu editor window D242
 - MERGE SELECTION command L188
 - MESSAGE command L243–245
 - messages
 - commands for displaying L238–247
 - Semaphore function L292–293
 - MESSAGES ON/MESSAGES OFF command L192, L246–247
 - Min function L345, L347
 - Min; Max; Unit; Step area D165
 - setting values for D177
 - Minimum (summary calculation) U107, U108
 - Minimum box (validation range) T67
 - modal window L250
 - modem transmission. *See* serial port
 - Modified function L152
 - Modifiers system variable L367, L384
 - Modify Lists dialog box U41
 - MODIFY RECORD command L141–143, L69
 - Modify Record menu command (Enter menu) Q34, T57, U6
 - for checking display format T19
 - for included files T124–125
 - for subfiles T136
 - MODIFY SELECTION command L69, L143–146, T205
 - execution cycle L51
 - MODIFY SUBRECORD command L226–227
 - modifying an included layout D187
 - modifying an object D166
 - modifying data, User environment for D10
 - modifying fields D48–49
 - modifying records Q34–36, U6, U57, U69–70
 - in output layout U25–26
 - searching and U53, U60–61
 - modifying text, in Quick Report layout U99
 - modularizing code L56
 - modulo operator (%) L109
 - Month of function L337
 - mouse
 - for moving between fields Q27, Q34
 - use of Qix
 - MouseDown system variable L367, L384
 - Move to Back menu command D89, D102, D107
 - Move to Back icon/tool D102, D107
 - Move to Front menu command D89, D107
 - Move to Front icon/tool D107
 - Move to Front/Move to Back icons/tools T11–12

- moving a file image D37-38
- moving layout objects D94
- MS-DOS ASCII data L303
- Multi-line check box D186
- multi-line layout D181-182
 - data entry into U42
 - displays D182-183
 - for included layout area D186, D187
- multi-page layouts D114-116
 - adding a page to D114-115
 - creating D114
 - deleting pages from D116
 - moving in D115
 - saving records in U29
- multi-user databases T186, U8-9
 - entering a password-protected database U11-12
 - graph color or pattern in U133
 - guest access in U13
 - lists and U41
 - LockedSet system in L276
 - managing access in L315-316
 - hardware recommendations D293
 - managing L285-293
 - opening remote data files U10-11
 - output layout title bar U47
 - password access system D255-271, T213-223
 - selecting U9
 - Sequence number in D156, L271
 - setting D289-290
 - temporary files in U9-10
- multi-user radio button U9
- MultiFinder
 - compatibility with D292
 - memory use under D291
- multiple layout objects, selecting D93-94
- multiple records, printing included layouts with D183, D184
- multiple search conditions T146-148
- multiple sort levels, on Quick Report layout U104
- multiple-file databases
 - current selections in U48
 - searching in U50
 - structures D33-34
- multiplication operator (*) L18, L109

N

- Name box D164, D166
- naming a database Q5
- naming conflicts L103
- naming conventions L98-103
- navigation buttons U27, U30
 - in modifying records U69
 - in searching U50

- navigation icons, in standard interface D126
- negative number display D138
- nested groups, removing D265
- nested lists D277-278
- nesting access groups D265
- networks. *See also* multi-user databases
 - for multi-user mode U8
 - password access system for D255-271
 - recommendations for D293
- New button D4
 - for layout D71, D72
 - for menu bar D242
- New menu command (Items menu) D281
- New menu command (List menu) D280
- New Database menu command D24, U4
- New Field menu command D41-42
- New Field menu command (Structure menu) Q8
 - New File menu command D39, T104
 - New Group menu command D263, T217
 - New Layout dialog box D72, D116-117, Q16-17, Q19, Q20, T38-39
 - for included layout T122-123
 - for related file layout T108-110
 - for report layout T168
 - for subfile T133-134
 - selecting fields in D72, D73-79
- New Line button
 - in Label editor Q65
 - in Label layout U121, U122
- New Record menu command (Enter menu) Q26, U6, U26, U67-68
 - for checking related files T114
- New Step menu command D230, D231
- New Test menu command D230, D231
- New User menu command D261, T216
- Next button, in creating fields D43
- Next Page button D172, D82, U30
 - creating T39-40
- NEXT PAGE command L147
- Next Page icon/tool D115, D116, T38
- Next Record button D82, D172, U30
 - creating T28, T29
- NEXT RECORD command L189-190
- NEXT SUBRECORD command L231
- No Action button D172
- No Trace button, in Debug window L74
- NO TRACE command L365
- non-enterable objects D169, D170
 - in report example D207
- Not function L349
- Num function L341-342
- number display, as progress indicator D28
- number field formats D136-140
- number field types D44-45
- number sign (#)
 - #D (current date) D156
 - #D (date of printing) U113

- #H (current time) D156
- #H (time of printing) U113
- #N (sequence number) D156
- #P (sequential page number) U113
 - as comparison operator U58
 - in Alpha field format D141-142
 - in Break row labels U106-107
 - in entry filter D150, D152-153, T65
 - in number display format D137
 - in numeric format U109-110
 - in Quick Report editor T161
- numbered records L264-270
- numbers
 - display format for Q27
 - field type for Q10
 - in entry filter T65
 - in filter arguments D151, D152
 - in passwords T216
- numeric comparison operators L112
- numeric constants L106
- numeric data, Quick Report formats for U109-110
- numeric data type L16, L104
- numeric display format, setting T18-19, T78-79
- numeric expression L19, L20
- numeric fields
 - entering data into U32
 - in graphs U114, U130
- Numeric Indirection L376
- numeric operators L18, L109
- numeric variables L21
 - counters L33

O

- Object Coordinates dialog box D96, D98
- Object Definition dialog box D163-165, L39, T25
 - adding script in D161
 - assigning keyboard shortcuts in D168
 - display format choices in D167
 - for creating script D221
 - for opening a script D223
 - getting to D166
 - in duplicating buttons T29
 - on report layout T172-173
 - scale and indicator settings in D177
- Object icons/tools, on layout palette D86
- object identifiers L98-103
 - conventions summarized L103
 - naming conflicts L103
- object markers, in rulers D97
- Object menu D88-89
 - Align to Grid menu command D89, D104
 - Border menu command D89
 - Border submenu D111

- Color submenu D89, D112
- Duplicate menu command D89, D105
- Fill Pattern submenu T10, T11
- Fill submenu D88, D110
- Format menu command D89, D166, D187
- Format submenu T16–17
- Group menu command D89, D101
- Line submenu D110
- Line Width menu command D88
- Line Width submenu T10
- Move to Back menu command D89, D102, D107
- Move to Front menu command D89, D107
- Position menu command D89, D95, D96
- Ungroup menu command D89, D101
- Object Type pop-up menu L39
 - in creating buttons T26
- object-oriented graphics, for Picture field U35–37
- objects. *See also* active objects; graphic objects; layout objects; variables
 - dragging T7–8
 - on report layout T172–177
 - selecting multiple T13
- Objects on Grid menu command D87, D178, D179
- OK button, creating T24–27
- OK system variable L24, L383
 - Cancel button and T203–204
- Old function L224
- OLD RELATED MANY command L225
- OLD RELATED ONE command L225
- On Background display format D146, U36
- ON ERR CALL command L73, L365–366
 - procedure L297
- ON EVENT CALL command L366–368
- ON SERIAL PORT CALL command L309
- One file
 - Many file and D51–52, T103, T106
 - selecting fields from D75–76
- ONE RECORD SELECT command L272
- one-to-many relation T103, T121–126
- “Only if modified” check box D163, D165, D167–168
 - reports and T173
 - output layout scripts and D197, D207
- Open button
 - for creating a procedure D221
 - for existing database D5
 - for importing records Q31, Q33
 - for new database D3–4
 - for opening a procedure D222

- Open menu command
 - for a Quick Report design U95
 - for existing database D5
 - for new database D3
- Open data file dialog box D5–6
- Open Database menu command D24, U4
- Open document function L300–301
- Open Included button D173, D182
- OPEN WINDOW command L253–254
- open windows, listing of D19–20
- “Open data file” dialog box U10–11
- open-file dialog box L300
 - for label designs U121
 - for Quick Report designs U95
- opening a database D5, D24, U4, U10
 - startup environment for D27
 - with password D256
- opening a procedure D222–223
- opening a script D222–223
- Operator area, in Search editor U55, U56
- operators L18, L108–116
 - in search condition T144
 - precedence with L108
 - with expressions L19
- Option key
 - for adding control lines D203–204
 - for cloning a database D7
 - for Open data file dialog box D6
 - for user interrupt L72
 - in creating procedure T93
 - in Debug window L75, L76
 - with Break marker T169
 - with Header marker T170
- Option-click
 - for inserting fields D214
 - for opening a script D223
- Options menu, Scale menu command U134
- or, with search conditions T147–148
- Or (conjunction operator) U52
- OR (!), in searching L195, L196
- OR operator (!) L114
- Other menu
 - Delete Last Sort menu command Q56, U105
 - Edit a Formula menu command U101, U102
- output ASCII maps U147
- Output check box D83
- output control lines
 - adding D203–204
 - for report example D206
- Output devices
 - for quick reports U113–115
 - Picture fields and D45
- OUTPUT LAYOUT command L69, L138
 - in application L64, L66, L67, L68
 - in report procedure T206, T207

- Output Layout icon T70
- output layouts. *See also* layouts
 - adding control lines to D203–204
 - adding records in U67, U68–69
 - changing display format on T19
 - creating Q19–21
 - current selection on U48
 - deleting records from U72–73
 - displaying records on T19
 - Enter in List mode U23, U24, U25–26
 - establishing D82–83
 - example of D68, D194
 - fast access to T70
 - for labels D211–213, U120
 - for printing included layouts D183–185
 - for reports D198–204, D206–207, Q51–52, T166–172
 - for screen display D197–198
 - icons for U18, U19
 - modifying records in Q36, U69–70
 - moving between fields in U26
 - normal mode U24
 - output control lines D195–197
 - role of D68, D193, U3, U23
 - searching in U50
 - selecting all records in U48
 - selecting record subset in U49
 - sorting on U77
 - standard reports with U85–87
 - template type for D80, D81
 - title bar U47–48
 - using U23–26
- Oval icon/tool D98, T11

P

- packet
 - defined L298
 - sending and receiving L302–305
- page border lines, setting up D91–92
- Page buttons D172–173
- page menu commands L146–148
- Page Down key, for next page D82
- page headers, for quick reports U111–113
- Page icons/tools, on layout palette D87
- Page navigation buttons U30
- page numbers
 - adding to quick report U113
 - script for T178
- Page Setup menu command D24, L169, U5
 - for reports D209
- Page Setup dialog box D91–92, Q51, Q63, U86, U89, U119
- Page Up key, for previous page D82
- pages, adding to layouts T37–38

- parameter passing L56–57
 - counting L369
 - identifiers in L102
 - local variables and L24
 - to menu commands L131
 - with pointers L93
- parameters (arguments)
 - defined L27, T198
 - for menu commands L129–132
 - testing data type of L371
 - types of L132
- parent file D34, D46, T129
- parent layout U42
- parent record D35, D46, T129
 - returning to T137
- parentheses ()
 - as dead characters D154
 - versions 1.0 vs. 2.0 L377
- password access privileges T214
 - assigning D256, D266–270
 - Design menu command and U5
 - in File Attributes dialog box Q7
 - managing L315–316
 - to related file T114–116
- Password Access editor D16–17, D261, L58, T215, T215
 - for viewing usage D271
 - getting to D261
 - role of D255
- password access system D255–271, T213–223. *See also* access hierarchy
 - adding users and groups T215–218
 - assigning groups T220–221
 - assigning password access privileges D256, D266–270
 - assigning users to groups D264
 - creating access groups D263–264
 - described T214–215
 - disabling T221
 - entering database U11–12
 - environments and D259
 - for renamed file D40
 - group owners in D260
 - groups in D256
 - guests in D260
 - hierarchy scheme D257–258
 - importance of D255
 - initiating D260–261
 - maintenance of D270–271
 - managing L315–316
 - nesting groups D265
 - opening a database D256
 - placing users into groups T218–219
 - Quit menu command and D251
 - removing nested groups D265
 - removing users from groups D264
 - saving and loading groups D266
 - testing T221–223

- tracing and L73
- users in D256–257
- using database U12–13
- passwords
 - assigning to users D261–263
 - changing D263
 - for opening database D5
- Passwords menu command (Design menu) D261, D271, T215
- Passwords menu D261
 - assigning groups in T220–221
 - Edit Group menu command D263
 - Edit User menu command D263, T221
 - Load Groups menu command D266
 - New Group menu command D263, T217
 - New User menu command D261, T216
 - Save Groups menu command D266
- Paste menu command U31, U35–37
 - for copying lists D282
 - for menu item D249
 - for moving objects D26
 - for saving objects D106
- paste operations
 - entry filter and U39
 - for copying buttons T40
 - in Text field U33
 - to custom menu T193–194
 - with graphics U35–37
- PC-DOS ASCII data L303
- periods (.), in range D284
- phase L46
- PICT/PICT2 formats U35–37
 - in Picture fields D45
- picture areas, in data entry order U28
- picture data type L16, L105
- picture expressions L19, L20
- Picture fields D45
 - display formats D144–146, U35–36
 - entering data into U35–37
 - in reports U85
 - placing fields in layout with D132
 - printing with variable frame D159–160
- picture operators L115–116
- picture variables L21
- Pictures graph type L172, U129
 - changing picture in U133–134
 - changing scaling of U134–135
 - custom picture for U134
- pie charts L172, U129
 - creating Q67
- pixels T41
 - moving objects by D94
- placeholders
 - dead characters with D154–155
 - display characters for D153
 - in Alpha field formats D141

- in entry filter code D150, D152–153
- in number field formats D137
- PLAY command L262
- plus sign (+)
 - addition operator L18, L109
 - concatenation operator L18, L109
 - horizontal concatenation L115
 - horizontal move L115
- pointer comparison operators L113
- pointer data type L16
- pointer expressions L19, L20
- pointer variables L21
- pointers (cursors)
 - crossbar/crosshair D99, D166, D185, D231
 - entry order D119
 - I-beam D225
- pointers (in language) L87–94
 - examples using L80, L88–89
 - getting to a variable L370
 - passing to procedures L93
 - setting buttons using L92–93
 - to pointers L94
- points, for measurement scale D97
- POP RECORD command L272
- pop-up menus D175–176, L39, L41–43, T17
 - Action D164
 - arrays as L82
 - as active objects D129
 - entering data with U29
 - fast access to T70
 - for inserting fields D214
 - Type D164
 - variables and L21
- Position menu command D89, D95, D96
- Position function L328
- PostScript graphics U35
- PostScript printer U94
- precedence L108
- preferences
 - for Listing editor D224
 - setting D26–28
- Preferences menu command D24, D157
- Preferences dialog box D5, D26–28, D157
 - default Procedure editor in D219
 - for hiding lists D228
 - for update interval U29
 - users assigned in D259
- “Preview on screen” check box Q52
 - for labels Q65
 - for quick report U116
 - for report Q56–57
 - for standard report U86, U89
 - with calculated totals Q59–60
- previewing a custom menu D250
- previewing labels U120, U123

previewing on screen
 custom menus T193-194
 custom reports T180
 Previous Page button D82, D172, U30
 PREVIOUS PAGE command L148
 Previous Page icon D115, D116
 Previous Record button D82, D172, U30
 PREVIOUS RECORD command L190
 PREVIOUS SUBRECORD command L231
 Print button, in Label editor Q65
 Print menu command (File menu) D25, Q51, Q56, T179, U5, U86, U89, U116
 current selection and Q43
 Print dialog box Q52, Q65
 Print File dialog box T179
 Print Frame option, for included layout area D186
 Print from File menu L66
 PRINT LABEL command L69, L159, L160, L170-171
 PRINT LAYOUT command L159, L160, L167-168
 Print Quality dialog box U86, U89
 Print Scripts menu command D25
 PRINT SELECTION command L69, L159, L163-164, T207
 in application L66, L67, L68
 PRINT SETTINGS command L168-169
 "Print titles" check box D27
 "Print to" button, for labels U124
 "Print to" menu command U113
 "Print to" dialog box U113
 for labels U124-125
 "Print variable frame" check box D131, D159, D165
 printer control markers
 in Layout editor T169
 included layouts and D185
 printer dialog boxes L66, L68, L168-169, T180, U125
 printers
 for labels U119
 for quick reports U94
 printing Q51-67. *See also specific print operations*
 canceling U116
 custom reports T179-180
 graphs Q66-68
 included layout data D183-185
 labels Q63-65
 multi-page layouts and D114
 output control lines for D195-197
 output layouts for D198-204
 Picture fields and D45
 procedures for T206-207
 Quick Report editor for Q53-57
 quick reports with breaks T155-162
 scripts and D196

setting specifications for D24
 sorting for Q41
 User environment for Q25
 with calculated totals Q58-60
 with input layout Q52
 with output layout Q51-52
 with variable frame D159-160, D183, D184, D211
 printing data, User environment for D10
 printing labels D211-213, U125
 output device options U124-125
 test printing U124
 printing layout pages D91-92
 Printing page function L167
 printing quick reports U116
 hiding rows from U110
 output device options U113-115, U94
 page headers and footers for U111-113
 printing reports D209, L159-171, U85-87
 canceling L160
 fixed-frame vs. variable-frame D211
 to screen L160
 with break levels U87-89
 with included layouts D210-211
 with Picture fields D211
 with text fields D211
 printing to disk, ASCII map for U151-154
 procedural processing, in reports U85
 Procedure menu command D220
 for assigning access D267
 Procedure dialog box D220, T88-90
 creating file or layout procedures in D221
 for assigning access D267
 for opening a procedure D222
 Procedure editors D14-16, D219, L62-63, T76-78, T90, T91. *See also* Flowchart editor; Listing editor
 adding a procedure in T199-201
 choosing for script D162
 development role of L12
 getting to T88-89
 reverting to last version of D25
 specifying D27-28
 typing error caught by L72
 writing script with T79-81
 Procedure editor window D220
 for opening a procedure D222
 for writing script D222
 Procedure Name area D165
 procedure names L102
 procedure parameters, local variables and L24
 procedure titles, printing D27
 Procedure type dialog box D220, D221, T79
 for choosing a script D162

procedures D14, D217-235, L26-34, L7
 See also layout procedures; global procedures; scripts; subroutines
 assigning access to D267-268
 check boxes and D173-174
 control structures L29-34
 controlling flow of L117-121, L363-367
 creating D220-222, T91-93
 custom T194, T197-208
 custom menus for D187, T187-194
 default file for T200
 defined D217, T198
 disabling D222
 errors in L72-78
 example of D225
 executing or running L26, U141-142
 external D176
 for reports T206-207
 for search selection T205-206
 hiding keywords in D27
 in Listing editor D225-227
 layout name change and D84
 Menu editor and D245
 modifying T203-204
 naming D220
 opening D222-223
 passing pointers to L93
 radio buttons and D174
 startup L58
 terminology used in L27-28
 testing T202
 types of D217-219, L7, L26, T87
 User environment for D10
 using T87-95
 Procedures column
 appending a procedure to T190-191
 in Menu editor T189
 Procedures list, in Menu editor window D242
 programming T198
 progress/process indicator, selecting D28
 proportional column graphs L172, U129
 pull-down menus. *See* custom menus
 punctuation marks
 as dead characters D154
 in filter arguments D150
 PUSH RECORD command L271

Q

Quick menu command T158, U7, U94
 Quick Report design, loading and saving U95
 Quick Report editor L162, Q53–57, T155–156, U93–116, U96–97
 column sizing in U102
 for calculating Q58–60
 for exporting data U145
 getting to U94
 indications for D199
 role of U4
 sorting records in U103–105
 summary calculation options in U107
 using T158–162
 Quick Report Format dialog box U111–113
 Quick Report layout U96
 adding columns to U100
 adding or modifying text in U99
 adding summary calculations to U107–109
 and cells in U98
 Break row labels in U106–107
 deleting columns from U101
 inserting columns in U101
 numeric formats in U109–110
 replacing columns in U101
 sort order in U103–105
 quick reports
 See also Quick Report editor; Quick Report layout
 accepting page setup for U113
 adding columns to U100
 adding formulas to U102
 adding page numbers to U113
 adding time and date to U113
 deleting columns from U101
 elements of U94
 example U93
 graphs from U114–115, U130
 hiding rows in U110
 inserting columns in U101
 or justification for U100
 output devices for U94, U113–115
 page headers and footers for U111–113
 printing U116
 replacing columns in U101
 sizing columns for U102–103
 QUIT 4D command L363
 Quit menu command D25, D242, T202, U5
 in Menu editor T188–189
 in password system test T222
 password system and D251
 procedure assignment and D251
 quitting 4th DIMENSION Q11

R

radio buttons D174–175, L40
 as layout objects D175
 Boolean field U34, U35
 formatting a Boolean field as D143
 in custom interface D128–129
 in data entry order U28
 lists vs. D277
 setting with pointers L92–93
 radio pictures D174, L40
 RAM caching D292
 Random function L342
 range of characters, in filter arguments D150
 range of records, selecting Q43
 ranges, in lists D284
 READ ONLY command L292
 READ WRITE command L292
 read-only state L286
 Real field D44, Q9, Q10, T78
 entering data into U32
 symbol for Q11
 RecDelimit system variable L384
 RECEIVE BUFFER command L311
 RECEIVE PACKET command L304–305
 RECEIVE RECORD command L312
 RECEIVE VARIABLE command L313
 Record buttons D172
 Record number function L267
 record stack, using L271–272
 records Qvi, U17. *See also* data entry
 adding U29, U57–69
 adding in output layout U26
 canceling U30
 changing during data entry L140–146
 creating in related file T114–116
 defined D31
 deleting U31, U73
 display of Q29, Q34, Qvii–viii
 end-of-record delimiters U146
 entering Q26–29
 global updating of U57, U70–72
 grouping for graphs U130
 highlighting in output layout U24–25
 importing from another application Q30–33
 importing to related file T111–112
 in columnar reports D199
 in related files. *See* related files
 incomplete L153–154
 locked L285, L287
 managing L208–211
 memory use by D291
 modifying Q34–36, U57, U69–70
 modifying in included layout U43, U44
 moving between Q34–36, U30
 multi-user database management L285–293

numbered L264–270
 output layout for listing Q19–21
 parent T129
 printing Q51–52
 procedures for adding T199–204
 saving U29
 search subsets of (selection) T144
 searching for Q44–45
 searching through. *See* searching
 selecting Q34, U47–63
 selecting a subset of U49
 selecting all U25, U48
 selecting groups of Q42–44
 sending or receiving L311–312
 sequence numbers D156
 sets of L272–284
 sorting Q46–48, U77–81
 sorting for quick reports U103–105
 subrecords D35, T129, T130
 Records in file function L185
 Records in selection function L185
 Records in set function L282–283
 Records in subselection function L229
 Records window, for checking related files T113
 Rectangle icon/tool D98, T12
 rectangles
 aligning T12–14
 drawing T9–12
 REDRAW command L158
 REJECT command L153–154
 RELATE MANY command L221–223
 RELATE ONE command L218–221
 related fields D50
 relating fields vs. D53
 related files D49–64, L215–224, T101–103
 advantage of T101
 automatic vs. manual relations D53
 creating new layouts from D73–79
 creating new records T114–116
 creating records in D57–58
 creating relations D60–63
 current selection in U48
 entering data in D54
 importing records T111–112
 in series D59
 included layouts from D180
 maintaining integrity in D59–60
 many to one T101–116
 multiple-file structure for D33–34
 One file and Many file D51–52
 one to many T121–126
 relating vs. related fields D53
 removing D64
 removing relations D64
 searching in D58–59, U50
 searching on fields in T149–150
 sorting in D58, D59

- subfiles vs. T130
- testing automatic relation T113–114
- versions 1.0 vs. 2.0 L375
- wildcard look-ups in D54–57
- Related layout
 - checking T113–114
 - creating T108–111
 - selecting T113
- relating fields D53
 - wildcard character in D54–57
- Relation Type dialog box D62, T107–108
- relational database, defined D34
- Remember check box D28
- remote data file, opening U10–11
- Remove button Q33
- Rename File menu command D39
 - for new file T104
 - for restricting access D269
- renaming a file Q6–7
- Repeat, in loop T203
- Repeat loop L120, L33, L34
- repetition operator (*) L109
- Replace menu command D227–228
- Replace Next menu command D228
- Replace string function L330–331
- REPORT command L159, L162–163, L69
- report control markers T166, T167
 - working with T167–172
- report layouts T166–167
- Report menu U7
 - Choose Graph menu command Q66
 - Choose Labels Q63
 - Graph menu command U7, U130
 - Labels menu command D213, U7, U119
 - Quick menu command T158, U7, U94
- Report with Frame check box U96
- reports Q51–60
 - calculating totals on Q58–60
 - creating D208–209
 - creating (Layout editor) T165–180
 - creating (Quick Report editor) T155–156, T158–162
 - designs for D198–204
 - details and breaks in T157–158
 - example of D194, D204–207
 - making space for D197
 - output layouts for D193–197, D206–207, U85–89
 - previewing on screen Q52, Q56–57, Q59–60, T162, T180, U86–87, U89
 - printing D210–211, L159–171, T179–180
 - procedures for T206–207
 - Quick Report editor Q53–57
 - Quick Report vs. Layout T155, T165
 - sample scripts for D207
 - saving Q57, T162
 - scripts and L44
 - sort order for Q55–56
 - sorting for Q41
 - standard U85–87
 - summary information in D200–203
 - summary-only D202–203
 - User environment for D10, Q25
 - with breaks U85, U87–89
- Request dialog box L241
- Request function L241
 - local variables and L23–24
- Required check box D149
 - for Choices list T68, T69
- Required lists D278–279
 - for data entry D149
- reserved key combinations D248
- resize box Q21
- resize operator (*) L115
- resizing a file image D38
- resizing an object T7, T8
- resizing layout objects D95–96
- Return key
 - for data entry U29
 - in Text field data entry U29, U33
- reverse apostrophe/accnt mark ('), as comment mark L28, T91, T200
- Revert to Saved menu command D25
- Right menu command T176
- right margin marker, in Quick Report editor U97
- Round function L343
- Rounded Rectangle icon/tool D98
- routines
 - defined T198
 - in Procedure editor T77–78, T90
- Routines area, in Formula editor U71
- Routines list, in Listing editor D224, D226, D228
- row label bar
 - break level labels in U106
 - in Quick Report editor U97
- rows
 - hiding U110
 - Quick Report U98
- rows and columns
 - in output layout Q19–21
 - in reports Q53–55
- rulers D176–177, L43
 - changing D96–98
 - defining parameters for D165
 - entering data with U29
- runtime applications T186
 - custom menus for D239–251, T187–194
 - menu bars and D251
 - previewing menus for D250
- Runtime menu command (Use menu) U5
 - for testing procedure T202

- Runtime environment D10–11
 - button variables and D172
 - custom menus for D187–188, T193
 - default menu bar D251
 - Designer access to T223
 - guest access to D260
 - included layout area display D79
 - layout menu bar D188–189
 - moving to and from D11
 - network users and U8
 - output layout screen display D198
 - password access system for U12
 - procedures for T197–208
 - restricting access to D259, D262
 - testing procedures in T202, T204, T207

S

- SANE (Standard Apple Numeric Environment) L339
 - NaN messages L391
- Save button
 - for new database D4
 - in Formula editor U72
- Save menu command, for a Quick Report design U95
- Save data every...minutes D27
- Save Editorname menu command D25
- Save Groups menu command D266
- SAVE OLD RELATED ONE command L225
- save operations, access to D269
- SAVE RECORD command L210
- SAVE RELATED ONE command L224
- SAVE SET command L283
- SAVE VARIABLE command L352
- saving
 - a formula U62, U63, U72
 - automatic Q11, Q21
 - label design Q65
 - label designs U121
 - layouts T12
 - records U29
 - report design Q57
 - reports T162
- scale and indicator settings D177
- Scale menu command U134
- Scaled to Fit format D145, U36
- scatter graphs L172, U129
- scientific notation D139
- Scrapbook, saving layout objects in D105–106

screen display. *See also* layouts
 for dates Q27
 for dollar amounts Q27
 number of menu commands and D244
 of entered password T222
 output control lines D195–197
 output layouts for D193–194,
 D197–198
 previewing labels on Q65
 previewing quick reports on U116
 previewing report on T162, T180
 previewing reports on Q52, Q56–57,
 Q59–60
 previewing standard reports on U86–87,
 U89
 printing report to L160
 scripts and D196
 viewing layout pages on D91
 Screen height function L255
 Screen width function L255
 Script button D161, D165, D167, D221
 for opening a script D223
 for Subtotal routine T175
 in Field Definition dialog box D131
 in Layout editor T173
 Script editor, shortcut to T94
 Script window D162
 scripts D128–129, L7–9, L36, L37, T75. *See also* procedures
 adding D161–163
 as procedures L26
 attaching to objects D167–168
 buttons and D172
 check boxes and D173–174
 copied D106
 creating D221–222
 data entry and L38, U32
 defined D161, D217, T75, T76, T87
 disabling D222
 elements of T77
 execution cycle and L46
 for report example D207
 for report layout T172–177
 in custom interface D128–129
 layout name change and D84
 layout procedures vs. L10
 opening D222–223
 printing D25
 Procedure editors and T76–78
 radio buttons and D174
 reports and L44
 role of D161, D217–218
 using D161–163, L37–38
 using global procedures in T94
 with output layout objects D196, D197
 writing T78–81

Scripts layout
 adding new field to T78–81
 checking T82–83
 scroll bars L251
 adding to text objects D165
 for viewing records Q33
 in Quick Report editor U97
 scrollable areas D175–176, L41–43
 arrays as L82
 as active objects D129
 changing size of D228
 entering data with U29
 grouped L85–86
 in custom interface D128–129
 in Password Access editor D261
 scrolling D21
 in output layout U24
 Search and Modify menu command T150,
 U6, U53, U60–61
 Search and Modify dialog box U60–61
 search argument, specifying L195
 Search button Q44, Q45, U59, U60
 SEARCH BY FORMULA command L69,
 L192, L200–201
 Search by Formula menu command T150,
 U6, U53, U62–63
 Search by Formula dialog box, expressions
 in L19
 SEARCH BY INDEX command L192,
 L201–203
 Search by Index dialog box L202
 SEARCH BY LAYOUT command L193, L69
 Search by Layout menu command (Select
 menu) Q44, T143, T150, U6, U53,
 U58–60
 SEARCH command L5, L69, L192,
 L194–199, T205
 in application L64–65, L67
 procedure example using L28
 search comparator (<) L196
 search comparison symbols L196
 search conditions
 Boolean fields and D45
 comparison operators for U51–52
 compound T146–148, U52, U57
 creating U55–57
 defined U49
 elements of U50
 for related files D58–59
 formulas in U62–63
 in Search editor T144, T145
 modifying U57
 removing U57
 saving as disk files U57
 using T144
 wildcard (@) T150
 search conjunction (#) L195, L196

Search editor L65, L67, U53–57
 creating search conditions in T144,
 U55–57
 using T143, T145–150
 using in application T204–206
 Search editor buttons U55
 Search Editor menu command T145, T146,
 T147, T149, U6, U53, U55
 Search in selection check box U55
 Search menu D227–228
 Find menu command D227
 Find Next menu command D227
 Replace menu command D227–228
 Replace Next menu command D228
 search selection. *See* selection
 Search selection check box T148
 SEARCH SELECTION command L192,
 L200–201
 SEARCH SUBRECORDS command L192,
 L203
 searching L192–203, Q44–45, U47, U49–63
 and modifying U60–61
 Boolean fields and D45
 by formula U62–63
 by layout U58–60
 case in Q45
 comparison operators for U51–52
 conjunction operators for U52
 for a specific record Q44–45
 in procedures D227–228
 in related files D58–59
 indexed Q9, U50–51
 purpose of Q41
 Search editor for U53–57
 Search menu items U53–63
 sequential U50–51
 simple vs. compound searches U52
 User environment for D10, Q25
 wildcard character (@) for D54–57
 security. *See* password access system
 security system T213–223
 Select All menu command D26, D106, U25
 for deleting records U73
 Select menu U6–7, U53
 Search and Modify menu command
 T150, U6, U53, U60–61
 Search by Formula menu command
 T150, U6, U53, U62–63
 Search by Layout menu command Q44,
 T143, T150, U6, U53, U58–60
 Search Editor menu command T145,
 T146, T147, T149, U6, U53, U55
 Show All menu command Q34, Q43,
 Q45, T146, U6, U25, U48, U73
 Show Subset menu command Q42,
 Q44, U6, U49
 Sort File menu command U6, U81
 Sort Selection menu command Q46,
 Q47, U6, U80–81

Selected record number function L268
 selecting records Q34
 in groups Q42-44
 in range Q43-44
 purpose of Q41
 selection
 current U47-48
 defined Q42, Qix
 selection (record subset) T144
 printing T207
 procedure for modifying T205-206
 selection order arrows, changing T42-44
 selection rectangle D93
 SELECTION TO ARRAY command L81,
 L85-86, L361-362
 Semaphore function L292-293
 semicolons (:)
 in filter arguments D150
 in number field D138
 with parameters L56
 SEND PACKET command L302-303
 SEND RECORD command L311-312
 SEND VARIABLE command L313
 separator lines, for menu items D247
 Sequence number function L270-271
 sequence numbers D156
 sequence structure L29
 sequential search U50-51
 serial port, communication with L298,
 L302-314
 serial port communications, ASCII map for
 U151-154
 serial printing
 ASCII map for U151-154
 labels U124, U125
 quick reports U94, U114
 Set as Start menu command D230, D233
 Set as Start icon D233
 SET CHANNEL command L306-308
 SET CHOICE LIST command L155
 SET COLOR command L236
 SET ENTERABLE command L156
 SET FILTER command L155
 SET FONT command L90
 SET FORMAT command L156-157
 SET TIMEOUT command L310
 SET WINDOW TITLE command L256
 sets of records L102, L272-284
 Shift key, for highlighting records U25
 Shift-click, for selecting multiple objects
 T13, T29
 Shift-Option-click, for inserting fields D214
 Shift-Tab
 for data entry U29
 for moving between fields Q27
 shortcuts
 assigning D168
 double-clicking Qix

for appending fields U149, U150
 for buttons D165
 for inserting fields in text area D214
 for menu items D247-248
 for output layout Q20
 in custom menu T192
 in Formula editor U70, U71, U72
 Show All menu command (Select menu)
 Q34, Q43, Q45, T146, U6, U25, U48,
 U73
 Show Clipboard menu command D26
 Show Custom Menus menu command D250
 Show Page box D21
 Show Subset menu command (Select menu)
 Q42, Q44, U6, U49
 simple search U52
 by layout U58-59
 Sin function L344
 single-file structures D32-33
 single-page layout, as standard D126
 single-user environment, setting D289-290
 Single-user or Multi-user dialog box U9
 single-user systems, hardware
 recommendations D292
 size box L252
 for windows D20
 Size of array function L360
 SORT ARRAY command L86, L91, L357
 Sort box, in Quick Report editor U96,
 U103-105
 Sort button, in Sort editor U79
 SORT BY FORMULA command L204-205
 Sort menu command, in creating a list T51
 Sort menu command (Items menu) D285
 sort conditions, saved U79
 Sort dialog box L65, L68, L205, Q46
 Sort editor U79
 for permanent sorting U81
 sort fields Q46
 break levels U105
 breaks in D200-201
 changing U105
 deleting U105
 for report Q55-56
 marking U103-104
 on Quick Report layout U103-105
 SORT FILE command L69, L206-207, U6,
 U78, U79, U81
 sort levels U77-78
 break levels and D201, D205-206, U87,
 U105
 on Quick Report layout U104
 sort order
 data export and U149
 for quick reports U103-105
 for report Q55-56
 SORT SELECTION command L69,
 L205-206
 in application L64, L65, L67, L68

Sort Selection menu command (Select
 menu) Q46, Q47, T206-207, U6, U78
 Sort Editor and U79
 using U80-81
 SORT SUBSELECTION command L207
 sorting L204-207, Q46-48, T179, U77-81
 ascending vs. descending order U78,
 U80
 for quick report T159
 for quick report U96, U103-105
 for standard report U87
 in procedure T206-207
 in related files D58, D59
 Indexed field attribute for Q9
 on a formula U77
 on indexed records U77
 report design and T157
 sort and break levels T157-158, T159
 types of U78-79
 User environment for D10, Q25
 sorting a list D284-285
 sound, commands for L262
 spaces, as dead characters D154
 special characters, in filter arguments D150
 Special menu U7
 Edit Input/Output ASCII Map menu
 command U6, U7, U147
 Execute Procedure menu command U7,
 U141-142
 splash screen D250, D251
 spreadsheet, importing records from Q30-33
 stacked column graphs L172, U129
 standard data entry order D118, D119, D122
 standard interface D125, D126-127
 standard reports U85-87
 START TRANSACTION command L297
 start value, in For loop L121
 starting 4th DIMENSION D3-5
 setting single-user vs. multi-user
 environment D289-290
 startup environment, choosing D27
 startup procedure L257
 arrays in L41
 startup procedures L58
 for restricted access D258, D259, D260,
 D262
 in password system T216, T223
 statements L7
 sequence structure L29
 statistical functions L345-348
 statistics, for reports Q58-60
 Std deviation function L348
 Step button, in Debug window L74, L77
 step formula D231-232
 Step icon, in Flowchart editor D231
 step objects, in flowchart D229, D232-233
 stepping L77
 Stop button, for stopping search L192

- Stop Printing, report preview Q52, Q57
- Stop Printing button L160, U116
- string comparison operators L111
- string constants L106
- string data type L16, L104
- string expressions L19, L20
- String function L332–333
- string functions L326–334
- string operators L18, L109
- string variables L21
- structure, reduced view of D21–22
- Structure menu command, for adding a field T52
- structure commands L316–323
- Structure editor D12–13, D36
 - Alpha field length set in D153
 - assigning lists in D148–149
 - file images in D37–38
 - indexed fields display D47
- structure files D5, D6, U10
 - duplicating D7
 - in multi-user mode U8, U9
 - name of U10
 - updating D290–291
- Structure menu
 - New Field menu command D41–42, Q8
 - New File menu command D39, T104
 - Rename File menu command D39, T104
- Structure window D12, Q6–7
 - creating related files in D61–63
 - file images in D37–38, D39
 - for new database D4
 - protecting file in D269
 - removing relations in D64
- style changes, for menus T192–193
- Style menu D90
 - Center menu command T9
 - for quick reports U100
 - Right menu command T176
- styles
 - changing for menus D246
 - creating D157–159
 - for number display format D139
 - for page headers and footers U112–113
 - in quick reports U100
 - numeric format U109
 - specifying D109
- Styles button D28
- Styles dialog box D157, D159
- subfield names L100
- subfields D46, T129
 - creating T131–132, T133
 - in quick reports U100
 - in search conditions U54
- subfile display area T136
- Subfile field type T131
- Subfile fields D46

- subfiles D34–35, D46, T129–138
 - creating T130–135
 - entering data into T135–138
 - execution cycle L49
 - included layouts from D180
 - naming L99
 - nesting D46
 - searching in U54
 - selecting fields from D77–79
- submenus (Object menu)
 - Border D89, D111
 - Color D89, D112
 - Fill D88, D110
 - Line Width D88, D110
- subrecords D35, T129, T130
 - managing L226–232
 - searching on U54
 - Unique attribute in D48
- subroutines L11, L54, L55–57
 - as functions L57
 - global procedures as D218
 - passing parameters to L56–57
- subset of records
 - changing U48–49
 - creating U49
- Substring function L327–328
- Subtotal function L160, L166
 - break processing and U88
- subtotals
 - in Quick Report editor T160, T161
 - in reports D200–203
 - scripts for T174–177
- subtraction operator (-) L109, L18
- Sum (summary calculation) U107, U108
- Sum function L345, L347
- Sum squares function L348
- Sum symbol, in Quick Report editor T160
- summary calculation icon U108–109
- summary calculations
 - adding U107–109
 - in Break area U105
 - in reports D200–203
 - labeling U99
 - scripts for D207
- summary calculations check boxes U96
- summary reports D202–203
- support tools L12
- Symbolic Link format (SYLK) files U146
- symbols
 - as entry filters T65
 - as script elements T77
- Syntax Error window L72–73
- syntax errors L72
 - in formulas D235
 - in writing procedures D225, D226–227
- system variables L24, L383–384
 - ON EVENT CALL and L367

T

- Tab, ASCII code for Q31
- Tab character, as field delimiter U146
- Tab key
 - for data entry U29
 - for moving between fields Q27, Q34
 - for moving between records Q36
 - in Enter in List mode U26
 - Text field and U33
- Tan function L345
- telephone numbers D141–142
 - entry filters for D158
- templates
 - layout Q17, Q19
 - selecting for layout D73
- temporary files D291, U9–10
- test formula D231–232
- Test icon, in Flowchart editor D231
- test objects
 - drawing flow lines from D232–233
 - in flowchart D229
- tests
 - defined T198
 - on custom procedures T202
- text
 - in Break row labels U106–107
 - in Quick Report layout U99
- Text Area icon/tool D98, T172
 - for changing layout object T8
 - for creating field label T56
 - for embedded fields or variables D213
 - on layout palette D86
- text areas
 - changing appearance of D109–110
 - embedded field and variables for D213–214
 - embedding values of fields in T174–176
 - inserting fields in D214
 - modifying D113–114
 - role of D113
- text document/file U146
 - exporting to L212–213, U149–150
 - importing from L213–214, Q30–33
- Text field type D44
- Text fields
 - adding scroll bars to D157
 - entering data into U33
 - exporting data from U146
 - printing with variable frame D159–160
 - Return key in U29
 - search conditions in U56
 - text areas vs. D113
- “Text with scroll bar” check box D131, D157, D165
- thermometer L43, D176–177
 - as progress indicator D28
 - defining parameters for D165

- entering data with U29
- in searching L192
- variables and L24
- "This record does not exist", in related file T115
- "This record has been modified" alert box U31
- TIFF graphics U35
- tilde (~), in entry filter code D150
- time
 - adding to quick report U113
 - script for D207, T174
- time comparison operators L113
- time constants L107
- time data type L16, L105
- time expression L19, L20
- Time field formats D135–136
- Time fields D45
 - entering data into U33–34
 - in graphs U130
- time functions L338–339
- time operators L107
- Time string function L339
- time variables L21
- title bar
 - current selection on U47–48
 - output layout U47–48
- Title field, Choices list for T68–69
- totals
 - for reports Q58–60
 - in Quick Report editor T160
 - in reports D200–203
 - non-enterable objects for D169–170
 - scripts for T177
 - scripts for calculating D161, D207
- totals row U97
 - for Break row U105
 - hiding U110
 - in Quick Report editor Q54, T150, T155
 - inserting text in U99
 - summary calculations in U107, U108, U109
- Trace button, in Syntax Error window L73
- TRACE command L73, L365
- tracing L73–78
 - endless loop L33
- transactions L294–297
- transmitting data L302–314
- trigonometric functions L344–345
- True function L349
- Trunc function L343
- Truncated display format D145, U35–36
- truncation, printing included layouts with D183, D184
- truth tables L114
- Turn Grid On/Off menu command D104, D88
- tutorials, format used in Qiv

- Type function L371
- Type pop-up menu D164, D166
 - choosing button from D171
 - in creating buttons T26
- types. *See* field types; *specific field types*
- typing errors L72

U

- Undefined function L354
- underline (_), placeholder as D153
- Underline check box, in Menu editor T192
- Undo menu command D26, D108, T7, T29, U31
- Ungroup menu command D101, D89
- UNION command L281–282
- Unique attribute D48, T63, U38
- Unique field, entering data into U38
- Unique field alert box U38
- UNLOAD RECORD command L291
- Until, in loop T203
- Until statement, in Repeat loop L33, L34
- Up4 function L57
- update interval U29
- updates, global U57, U70–72
- updating structure and data files D290–291
- Uplow procedure, creating T89–95
- uppercase, script for changing to L9
- Uppercase function L331
 - in global procedure T91–93
- USE ASCII MAP command L69, L314
- "Use input layout" check box U148
- Use layout check box, in Label editor U120
- Use Layout option, in printing labels U125
- Use Map button U147
- Use menu U5
 - Design menu command T167, T202, U5
 - for changing environments D11
 - Runtime menu command T202, U5
 - User menu command Q26, U5
 - User submenu T19
- "Use output layout" check box, for data export U150
- USE SET command L277
- User menu command (Use menu) U5
- User environment D10, Q25, Q26, U3–4
 - Administrator access to T223
 - application vs. L64–66
 - button variables and D172
 - checking choice lists in T57
 - checking custom data entry order in T45
 - checking custom layout in T19, T30–32, T40
 - checking scripts or default values in T82–83
 - custom menus appended to D187, D188, U7–8
 - data import and export facilities

- U145–150
- data transfer in U151
- executing global procedures from U141–142
- for labels Q63, D213
- for included file record display T124
- for relating files T111–112
- grouped objects in D100
- included layout area display D77, D79
- Label editor in D211
- layout menu bar for D188–189
- layouts in U17
- List editor in D285
- menu items vs. commands L69
- menus U4–7
 - moving to and from D11
- output layout in D194
- output layout screen display D197–198
- password access system for U12
- printing in Q51
- restricting access in D258
- role of L12, L13, L60
- standard interface for D126–127
- window in L248
- user interface, scripts and L7
- user interface commands L234–262
- user interrupt L72
- User Modifiable menu command D285–286
- user names, changing D263
- User submenu, for checking display format T19
- user-modifiable lists D285, T52
- users T214
 - access to environments by D259
 - adding D261–263, T215–217
 - assigning to groups D264
 - in access hierarchy D257–258, D259
 - placing into groups T218–219
 - removing from groups D264
 - viewing usage by D271
- Users box T215
- Users lists, in Password Access editor D261
- UserSet system set L275

V

Validate input layout T70, T71
VALIDATE TRANSACTION command L297
validation range
 adding T66–67
 data entry with U38–39
Validation range alert box U38–39
Value area, in Search editor U55, U56
values
 default D156
 excluded D279
 functions and T198
 in search condition T144, U50
 non-sequential ranges of D279–280
 placing in a field or variable T77
 required D278–279
 scale and indicator settings D177
 scripts for calculating D161
 setting maximum and minimum D155
 validation range U38–39
variable indirection, versions 1.0 vs. 2.0 L375
variable-frame printing D159–160, D211
 with included layouts D183, D184
variables L21–24. *See also* global variables;
 local variables
 assigning data to L22–23
 buttons and D172, L39
 creating L22
 data types L104–105
 embedded D213–214
 enterable and non-enterable objects with
 D169–170
 local T92
 managing L352–354
 naming L100
 placing values in T77
 pointers to L87, L88–89
 role of D169
 sending or receiving L313
 testing for L369–370
Variance function L348
vertical bar (|)
 for number display format D139
 for numeric style U109
 in Alpha field format D142
 with style name D158–159
vertical concatenation (/) L115
vertical move (/) L115
vertical scaling (*/) L115
View button, in Debug window L74

W

viewing layout pages D91
welcome screen D3, D5, Q4
While loop L32–33, L34, L119
wildcard character (@)
 for writing procedures D226
 in Search by Layout U59
 in search condition U51–52
Wildcard choices list, in relating files T108
wildcard look-ups, in related files D54–57
wildcards, in searching (@) T150
window titles, setting L252, L256
windows. *See also* resize box; zoom box
 editor D19–21
 erasing L246
 managing L247–256
 message L244–246
 moving D20
 reduced view of D21–22
 scrolling through D21
 types of L248–249
word processing, external area for D176
word wrap, in text subfile T137
write-only state L286

Y, Z

Year of function L337
zero, in number display format D137
zoom box L252, Q18
 for expanding Layout window Q18
 for viewing report T180
 resize box vs. Q21
Zoom button, for checking report Q52, Q56

Examples

Advanced

clockbook

Contacts II

Scheduler

To access

Design

hold down Option Key

click ⁺ Mouse